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ALASKA MEDICINE

A full-page background photograph showing a vast, rugged mountain range covered in snow. In the foreground, a dark, winding road or path leads through a snowy, rocky terrain. In the middle ground, a calm body of water, likely a lake or fjord, stretches across the scene. The sky is a pale, hazy blue.

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Volume 15,
Number 1
January 1973



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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

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Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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ALASKA MEDICINE

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January Cover — Knik River, Matanuska Valley.

Alaska Medicine, January 1973

Letter to the Editor

From: W. J. Mills Jr., M.D.

1. Chairman, Emergency Room Committee
Providence Hospital
2. Chairman, Trauma Committee, Alaska,
for American College of Surgeons

To: Those Concerned with Community Disaster Planning

Subject: Emergency Beds (Exchangeable Stretchers) for:

1. The injured
2. The displaced and homeless
3. Those requiring emergency shelter and aid from any
emergency or any cause

Reference and History: The concept of an Exchangeable Stretcher came from experience in World War II. Troop Transports, carrying Marines to landing areas, after off loading troops, remained to pick up the wounded, sick, or injured. These patients were transferred back to the Base Hospitals in the same bunks, stretchers, or hammocks, attached to bulkheads, that had carried up the invading Marines.

1. Throughout the State of Alaska, and certainly in Anchorage, the largest urban population center, there appears to be a hospital bed shortage.

2. Present building plans increasing hospital beds will not provide more beds until 1973, 4 or 5. By this time, increased population growth may require again even more hospital beds than those in planning now. Recent health surveys and future planning notwithstanding, this has been

the past experience throughout Alaska, and elsewhere. We have no reason to believe that the future will be any different.

3. At present, one hospital cannot provide for the current load without placing patients in the hallways. Here, in the event of disaster requiring emergency beds, the burden of caring for critically injured persons would lead to much disorganization, ineffectiveness and inefficiency. The result would be delay in care, increased patient problems and complications. Patients on pallets, strewn helter skelter, on decks and in corners, make for interesting TV news shots, but poses difficult care problems, particularly when medical personnel deliver care on hands and knees or bent double.

4. In our particular area, where earthquake, tidal wave, major aircraft accident, or avalanche is likely, an insurance program providing shelter and beds for the injured and/or homeless, seems indicated.

A combination Emergency Bed — (Exchangeable Stretcher) solution appears available without much effort, with minimum cost, on a State wide basis.

5. The long basement corridors or patient floor corridors of the present hospitals can be modified to accept wall hooks for hanging a uniform Exchangeable Stretcher. These Exchangeable Stretchers, brought from the arriving ambulance, or aircraft, (using a common type stocked by Borough ambulance vehicles, National Guard groups, Air Force, Army, Navy and Coast Guard organizations,) can be attached to the wall hook of the receiving unit or hospital.

The stretcher filled corridors allow immediate patient care, pre and post surgical care and medical care and

THE EXCHANGEABLE UNIFORM STRETCHER:

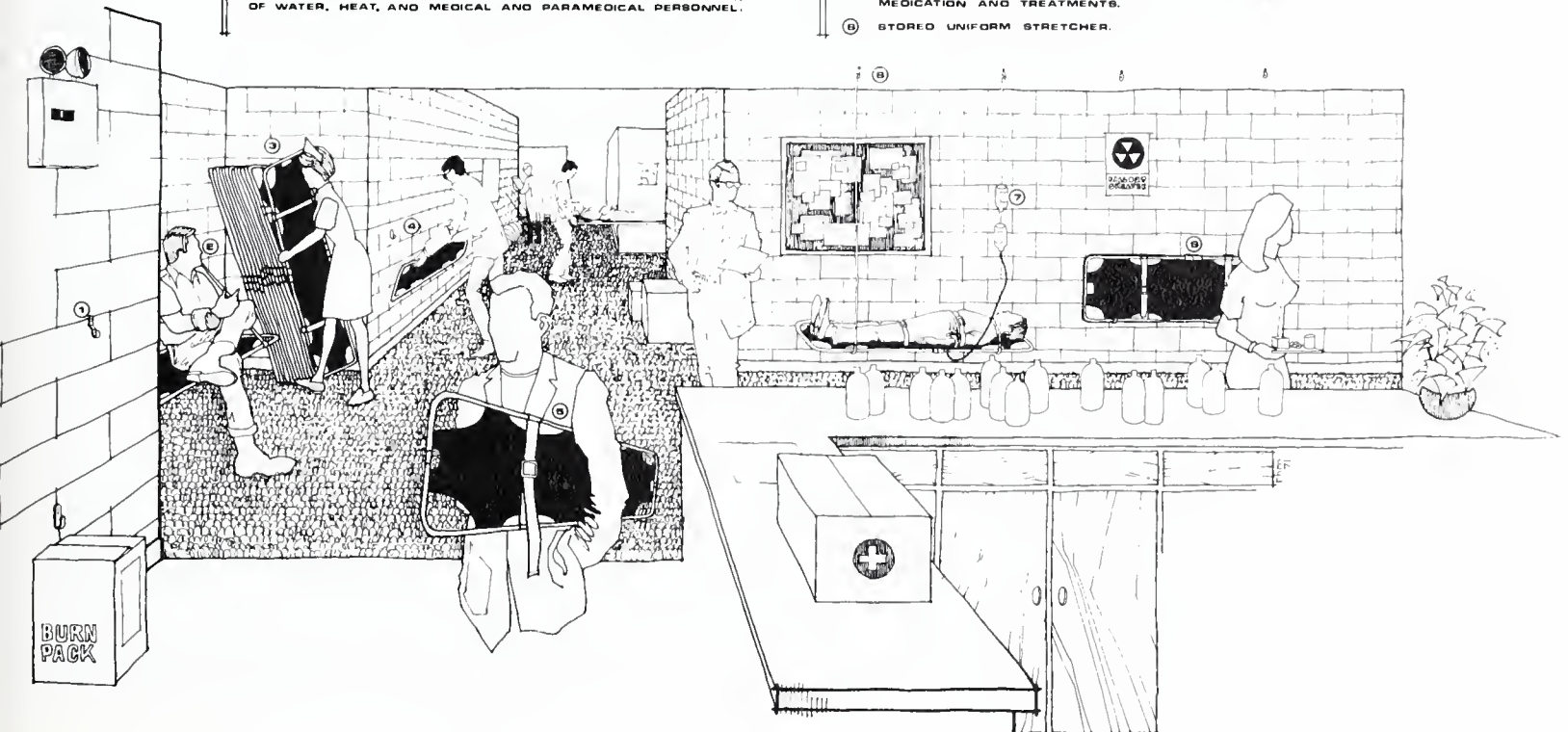
A PLAN FOR INCREASING EMERGENCY BED SPACE IN THE EVENT OF LOCAL OR STATEWIDE DISASTER

THIS CONCEPT PROPOSES TO DEVELOP TEMPORARY MEDICAL UNITS BY THE CONVERSION OF EXISTING STRUCTURES SUCH AS PUBLIC BUILDING SPACE, SCHOOL CORRIDORS OR GYMNASIUMS, NATIONAL GUARD ARMORIES OR RESERVE CENTERS, WAREHOUSES OR HANDERS, ETC., INTO EMERGENCY HOSPITAL CARE FACILITIES.

AFTER THE WALLS OF THE BUILDING HAVE BEEN EQUIPPED WITH THE PROPER HARDWARE, THE UNIFORM STRETCHERS MAY BE FOLDED UP AGAINST THE WALL OR STORED IN BULK IN A DESIGNATED AREA WITHIN THE BUILDING, OR THEY MAY BE DELIVERED BY AN AMBULANCE ATTENDANT WITH THE VICTIM ALREADY ON THE STRETCHER. BY UTILIZING THIS SYSTEM, NEARLY ANY BUILDING MAY BE CONVERTED TO AN EMERGENCY AID STATION, MORQUE AREA, OR FIELD HOSPITAL AND PUT INTO OPERATION SIMPLY BY THE ADDITION OF WATER, HEAT, AND MEDICAL AND PARAMEDICAL PERSONNEL.

LEGEND

- ① EMERGENCY STRETCHER WALL HARDWARE.
- ② WALL MOUNTED STRETCHER.
- ③ STORAGE PILE OF EMERGENCY STRETCHERS.
- ④ WALL MOUNTED STRETCHER LIFTED FREE.
- ⑤ ALUMINUM MODEL STRETCHER - LENGTH 73 1/2", WIDTH 19 1/2", WEIGHT 9 POUNDS - MAY BE FOLDED LENGTH-WISE OR AT MID-SECTION.
- ⑥ OVERHEAD STRETCHER SUPPORTS FOR CEILING HUNG STRETCHER.
- ⑦ SUPPORT ROOS OR WEB STRAPPING WITH HOOKS FOR I.V. MEDICATION AND TREATMENTS.
- ⑧ STORED UNIFORM STRETCHER.



provide as effective a bed unit as need be for the disaster or emergency victim. (And at regular bed height - with ready access to the victim.)

6. The interchangeable stretcher system in the Anchorage area for instance could:

a. Increase the bed capacity for emergency care of Providence Hospital, Elmendorf Air Force Hospital, Alaska Native Hospital, and the Alaska Psychiatric Institute, by one hundred beds each for an area total of four hundred beds, by utilizing stretchers, exchangeable, attached to permanent hook units along corridors, basement or hall corridors.

b. Add fifty emergency units to the spaces and corridors of Community Hospital.

c. Provide emergency bed area for the homeless and/or walking wounded, or others, of one hundred or more beds each, at Alaska Methodist University, and University of Alaska at Anchorage, in their basement and corridor areas.

d. The Area Elementary, Junior High, and High Schools, in their corridor system might easily contribute sufficient space for fifty to one hundred such units. The stretchers may hang on hardware or be stored for future use. These areas also provide kitchen and cafeteria capability.

e. National Guard Armories have adequate wall space to utilize such stretcher units:

1. For emergency care
2. To function as a temporary aid station
3. To give emergency shelter to the homeless, military, or civilian

These units may provide seating space for mass meeting, as well, or sleeping cots for drill or maneuver periods. Once again, in event of need, they provide an aid station or hospital unit, or triage center.

A hospital, after all, is merely an area with multiple walls and a roof, with greater or fewer facilities, for the care of sick patients. In an emergency sense, any such unit where doctors, nurses, aids, and volunteers congregate, is indeed an emergency field hospital. If our earthquake hasn't taught us that, our medical experience in Viet Nam has done so.

7. The air port buildings, the terminal building, their corridors, and even the hangars, would permit further emergency stretcher shelter area, not only for emergency beds in the event of accident, but also function as rest area for troops, or large groups, who are awaiting transfer elsewhere. These people otherwise lie in clumps about the corridors, for want of other facilities. Whether the stretcher units are to hang in place ready for use, or be stored nearby, would be the prerogative of the unit administrator.

In the event that any or most of these units (i.e. hospital, airport, armory) are destroyed in a disaster, the remaining areas, (schools, warehouses), are prepared to temporarily substitute as emergency collection, first aid, treatment, or hospital areas.

8. If these Exchangeable Stretchers are used Alaska-wide, no problems of transfer of patient or victims are visualized. The receiving unit, a plane or ambulance or hospital, merely trades their empty stretchers, for the patient loaded stretchers. The empty stretcher is then replaced in the carrier ready for use again. The system, therefore, works most effectively, if the stretcher has common usage by all State agencies, ambulances, airlines,

hospitals, and U. S. Government agencies including the military, Federal and State.

9. The development of a program to make emergency beds available, and to provide shelter, obviously transcends any regional or local problems of hospital or agency identity or competition. But the who, why, where, when, and how must be planned long before the need.

10. Another possibility exists, for the provision of shelter and emergency beds. Throughout the maritime area of the United States, are naval vessels in storage or moored in nests, or at docks, some even with station keeping crews. They await return to sea in the event of need; they age and rust until then. Many of these vessels are small communities on their own. They contain sleeping area, working area, cooking area and massive power plants, sufficient to supply large communities.

One of these vessels, perhaps a hospital ship, a transport, a carrier - is the ship type you need, at your dock.

The vessel can reside, in dignity, ready for service, at a Ketchikan, Juneau, Sitka, Anchorage, Kodiak or other dock, as well as decay in clumps of steel, at Bremerton or Brooklyn. Constant use as a Naval Militia, or Naval Reserve Armory could be one of it's functions, or as an auxiliary power plant, or museum, or municipal or State or Federal office, or as a convalescent home, alcoholic detoxification center, drug abuse center, you name the useful purpose. Or when needed, to play a major role as an Emergency Receiving Unit in a disaster period.

These vessels, properly prepared ahead of time, have a further attribute, that of mobility. In the event of disaster in a sea coast region, they can be moved, (towed or under their own power), to the stricken area.

11. Where are other Emergency Beds possible?

1. In any barracks building
2. Examining tables in physician's offices (where incidentally there are medical supplies plus heat and water)
3. Hotels and motels, the rooms and corridors
4. Municipal buildings
5. Most schools and churches
6. Heated warehouses
7. Large coastal or ocean vessels
8. Railroad cars

Everybody knows all of the above now — it is demanded that we not forget the 'where is it' when disaster strikes. Medical care and shelter are only segments of the large disaster pie, cooperating with government, police and fire departments, rescue workers, and road repairs and traffic control. Once the others have done their job, pre planning will allow us to do ours.

It troubles some to utilize Exchangeable Stretchers on corridor walls, with patients treated in open areas. The pattern isn't new. In some of our local hospitals today, patients in non-disaster times are being treated by necessity, for lack of bed space, in the hospital corridors.

Summary: An Exchangeable Stretcher (Emergency Bed) plan is provided for use in major disaster and for Emergency triage.

Sincerely,

William J. Mills, Jr., M.D.

THE PHENOMENON THAT IS DR. WEED

On September 29th Dr. Lawrence L. Weed spent nearly twelve hours in Anchorage lecturing and discussing his work. The few doctors who took the time to hear him were amply rewarded, for to hear Dr. Weed in person is an experience to be remembered. His incisive analyses of complex problems, his sparkling wit, and his seemingly boundless energy held his listeners absorbed for hours.

A microbiologist and biochemist by training, Dr. Weed, now Professor of Medicine and Community Medicine at the University of Vermont, has changed the face of medical education in this country by the force of his personality and his teachings. From its obscure beginnings in 1957 at the Eastern Maine General Hospital in Bangor, his system of medical records, medical education and patient care has been adopted in one form or another in dozens of medical schools, hospitals, clinics, and private offices around the country. At least three books and well over fifty journal articles on the system have been published in the last five years.

There will be those who will say he is ruthless, arrogant, opinionated, and lacking in understanding of the problems of medical practice. They will tune out his transmission because the static bothers them.

But Dr. Weed's overbearing style, threatening as it may be, should not becloud the fundamental message he bringing — that medicine is a public trust, and that the patient's welfare lies at the core. The idea is not new. After all, Hippocrates was saying the same thing under the plane tree in Cos. What is new is the emphasis and the technique. The problem-oriented record is a tool which permits the physician to analyze and care for a patient's many interacting problems in a systematic way. With its help the physician can improve his efficiency, set priorities for action, and involve the patient in a meaningful way in his own care. The record, however, no matter how well organized, is not an end in itself; the patient's welfare is the goal.

Dr. Weed is trying to bring reason, complete intellectual honesty, and the scientific method back into medical practice. The physician can no longer be a combination Delphic oracle and petty tyrant over the patient's destiny. His training, his judgment, his methods, and his outcomes are being held up to the cold eye of public scrutiny. Doctors should be aware of these currents of our times and discuss them openly. We should be grateful for, not suspicious of, the Dr. Weeds in our midst. They are trying to tell us something important.

R.F.



COINCIDENTAL PULMONARY GRANULAR CELL SCHWANNOMA AND BRONCHOGENIC ADENOCARCINOMA

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Similarity between a recent case¹ of granular cell schwannoma associated with a papillary adenocarcinoma of the lung brought to mind a similar case in an Alaska Native and prompted this review and comparison.

CASE REPORT

In May 1970, a 60 year old Eskimo female appeared at the U.S. Public Health Service Clinic at her home village of Bethel, Alaska complaining of chest pain and hemoptysis. Left lower lobe pneumonitis was treated by a ten day course of Penicillin. Because of incomplete clearing of the area of consolidation and persistence of symptoms, she was referred to the Alaska Native Medical Center in Anchorage for further evaluation.

In 1968 at age 58, a left nephrectomy was done for renal cell carcinoma of the classic clear cell type. Pulmonary tuberculosis was treated over a two year period ending in 1957, and a hysterectomy had been done in 1954 for prolapse. There was no history of use of tobacco or alcohol. Both parents died at age 60 of viral illnesses, and five siblings are dead of unknown causes. No familial history of cancer was known.

During her evaluation, a normal right kidney was visualized on IVP, and no evidence of recurrent or metastatic renal cell carcinoma was found on the left side. Several negative sputum cytology studies were obtained before one was considered suspicious for adenocarcinoma. Chest X-rays demonstrated persistent vague increased density in the left base, but no definite mass was recognized. Bronchial washings and biopsy from the left lower lobe area were positive for papillary adenocarcinoma. A left pneumonectomy was done for palliation since mediastinal metastasis was recognizable at surgery. When last seen in March, 1972, dysphagia was present because of mediastinal obstruction by residual tumor.

The gross specimen consisted of a left lung with an irregularly radiating, grossly verrucous tumor mass in the hilum extending into the lower

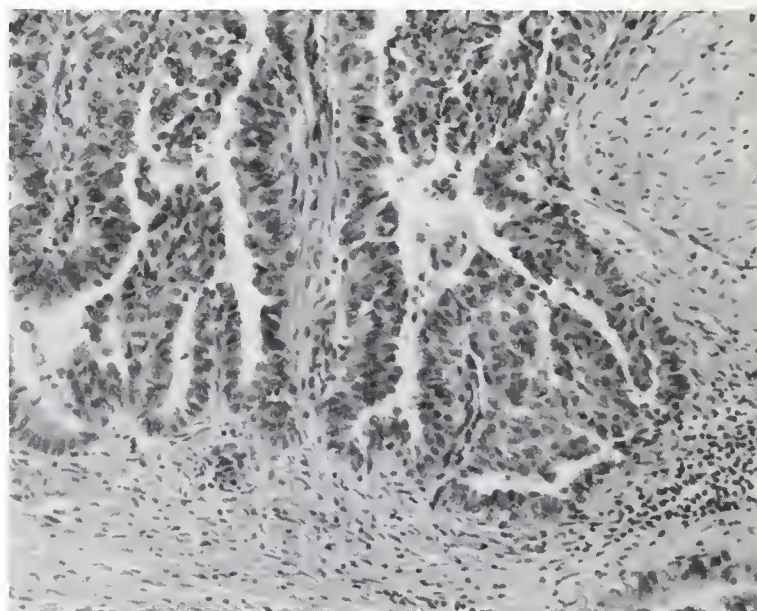


Fig. 1

Primary tumor - note prominent papillary structure X100

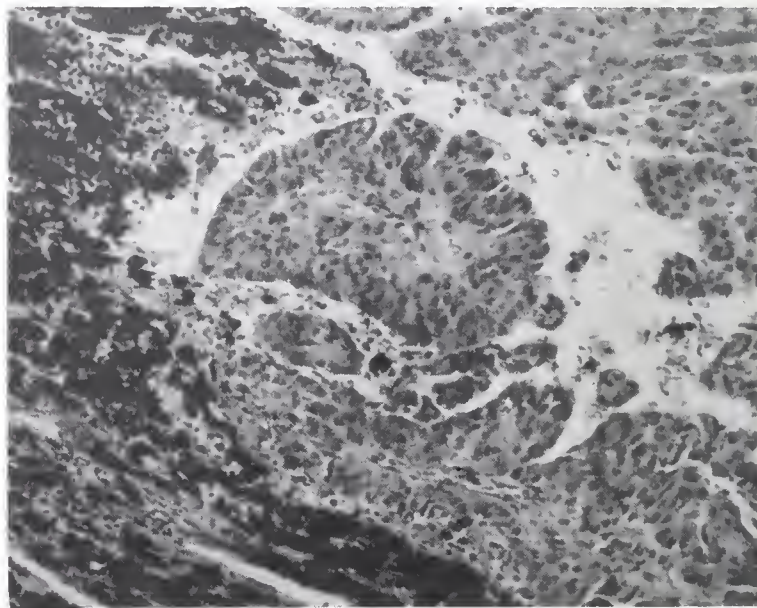


Fig. 2

Metastasis to anthracotic hilar lymph node X100

lobe. The greatest dimension of the grossly recognizable tumor was 6 cms. Numerous tiny gray

tumor nodules were visible in the lung elsewhere. In the apex of the upper lobe several old, white calcific nodules, averaging 0.5 cm. were seen, as well as a single yellow nodule of similar size. Microscopically the tumor was seen to be markedly papillary and to extensively invade vessels, lymphatics, and perineural areas, (Fig. 1) and to extend to numerous hilar lymph nodes (Fig. 2) The yellow apical nodule was a granular cell tumor. (Figs 3 and 4)

DISCUSSION

Granular cell tumors have been a subject of considerable interest for many years. Numerous hypotheses have been advanced to explain their derivation. In 1962, Fisher and Wechsler reported evidence indicating Schwann cell origin of such tumors², however, a recent paper by Christ and Ozello reports derivation of a similar tumor from smooth muscle³. These authors suggest that the granular appearance may be only coincidental among tumors arising from several parent tissues.

Since the literature review of Ostermiller, et al⁴, nine additional cases of pulmonary granular cell tumor have been reported, which, with the current one, bring the total to 41.^{1,5,6,7,8,9} Of these, the majority have occurred in the trachea or large bronchi. None has been clearly malignant although one was said to infiltrate the nearby lung and others have recurred after incomplete removal. Some have been associated with granular cell tumors at other nonpulmonary sites, and one patient had multiple pulmonary tumors.⁸

The similarity between the present case and that of Tamayo, et. al is striking but whether the association is more than fortuitous is problematic.

Two of the tumors have been examined by electron microscopy and both were thought to be of neural origin.^{7,9}

SUMMARY

A case of metastatic papillary bronchogenic adenocarcinoma is presented in which a granular cell tumor was found nearby. This case is similar to another recently reported.

REFERENCES

1. Tamayo J.L. and Rojas, M.C.: Granular Cell Myoblastoma (Granular Cell Schwannoma) of the Right Upper Bronchus Coexisting with a Bronchogenic Carcinoma. *J. Thor and Cardiovasc Surg* 62:268, 1971.
2. Fisher, E. R. and Wechsler, H.: Granular Cell Myoblastoma — a Misnomer. *Cancer* 15:936, 1962.
3. Christ, M. L. and Ozello, L.: Myogenous Origin of Granular Cell Tumor of the Urinary Bladder. *Am J. Clin Path* 56:736, 1971.
4. Ostermiller, W. E., Comer, T. P. and Barker, W. L.: Endobronchial Granular Cell Myoblastoma *Ann Thor Surg*, 9:143, 1970.
5. Symbas, P.N., Logan, W.D. and Vakil, H.C.: Granular Cell Myoblastoma of the Bronchus *Ann Thor Surg* 9:136, 1970
6. Bush, R.W., and Plain, G.L.: Granular Cell Tumors (Myoblastomas) Involving the Bronchus and Skin. *Am J. Clin Path* 50:563, 1968.
7. Suzuki, C., Oshibe, M. and Nagashima, Y.: Granular Cell Myoblastoma of the Bronchus. *J. Thor and Cardiovasc Surg* 61:271, 1971.
8. Vance, S.F. and Hudson, R.P.: Granular Cell Myoblastoma *Am J. Clin Path* 52:208, 1969.
9. Garancis, J.C., Komorowski, R.A., and Kuzma, J.F.: Granular Cell Myoblastoma *Cancer* 25:542, 1970.

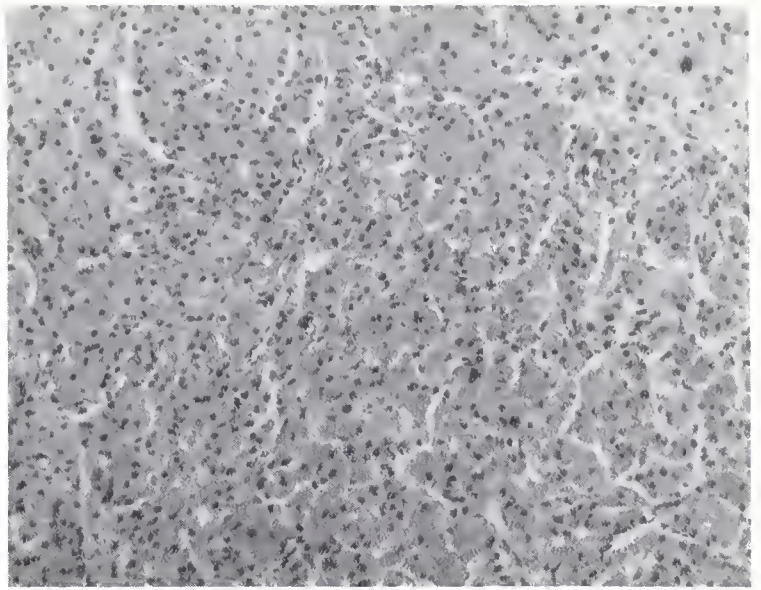


Fig. 3
Granular Cell Tumor X100

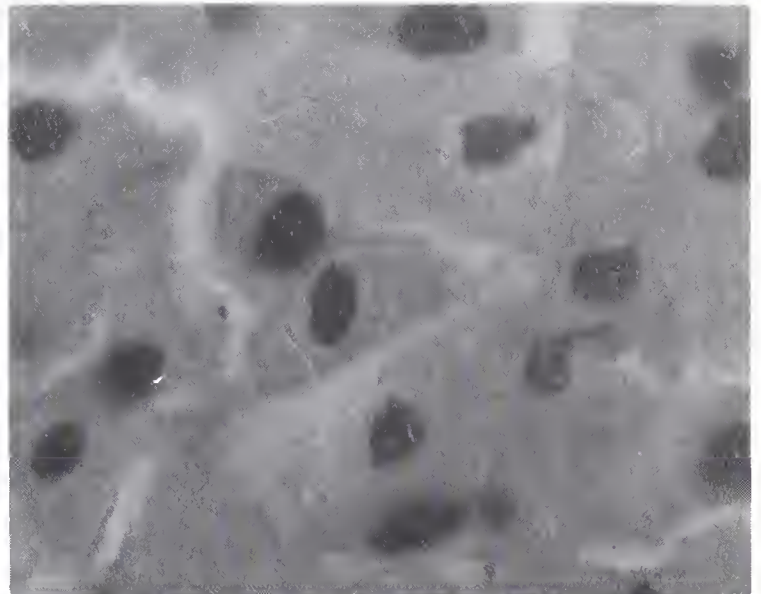


Fig. 4
Granular Cell Tumor X400

ANOMALOUS ORIGIN OF THE LEFT CORONARY ARTERY FROM THE PULMONARY TRUNK IN AN ADULT: ANGIOGRAPHIC DIAGNOSIS*

James W. Coin, Jr., M.D.

Anomalous origin of the left coronary artery from the pulmonary trunk is a rare congenital abnormality with serious consequences which has been reported in more than 160 patients according to a recent review.¹⁸ Most cases are diagnosed in infants; survival to adulthood is unusual. Clinical diagnosis is difficult, particularly in the adult, and may be suspected only on the basis of certain symptoms and physical findings described below. Angiography provides definitive diagnosis²² as well as additional information of considerable importance in selecting the appropriate surgical procedure for correction of the abnormality.^{2, 18}

Clinical Considerations:^{5,6} Over 80% of anomalous left coronary artery are diagnosed in infants^{1,19}; most do not survive the first year of life. Typically, the infant is normal at birth; within a few weeks the heart enlarges and heart failure occurs. In the infant, congestive failure is most often manifested by difficulty during feeding with rapid fatigue, cyanosis, sweating and pallor. The chest film shows massive cardiomegaly. Most frequently left heart enlargement and often left ventricular aneurysm are present. The electrocardiogram shows myocardial ischemia or antero-lateral infraction of the left ventricle. At this age, the major differential consideration is endocardial fibroelastosis²² which is more frequent in occurrence than anomalous left coronary artery. The most frequent surgical procedure in infancy is ligation of the abnormal artery. If the child survives beyond two years of age, more definitive surgical procedures often may be performed. The abnormal artery, in favorable circumstances, may be reimplanted into the ascending aorta.

The unusual older patient who survives early childhood^{10,11,12,13} rarely may be asymptomatic; occasionally the first manifestation of ALCA is sudden death in an adult presumably due to

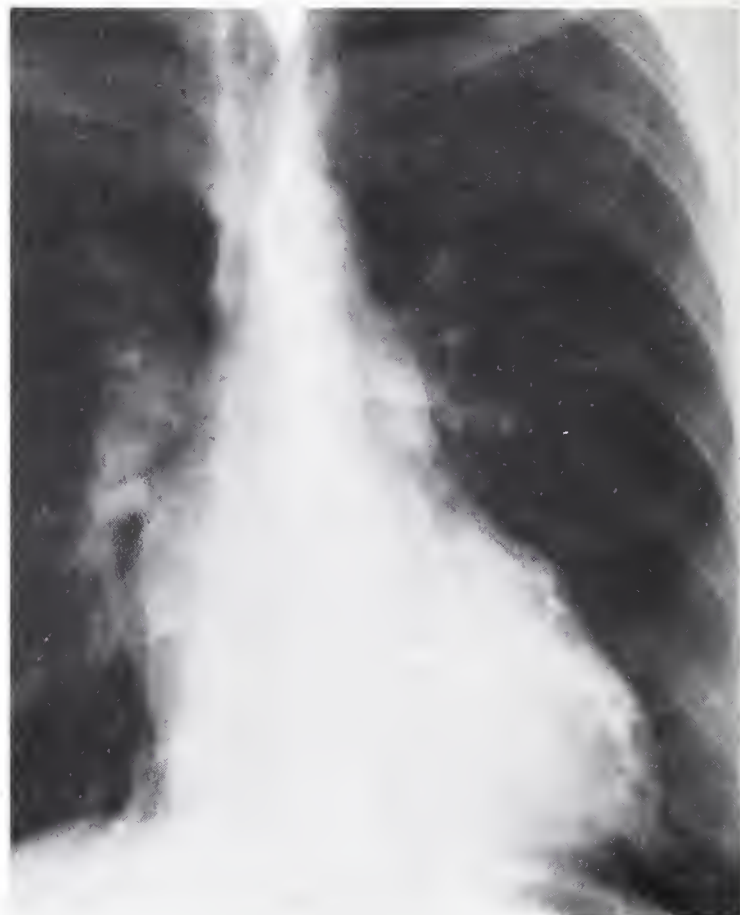


Fig. 1 PA chest showing cardiomegaly, left atrial enlargement, nodular and amorphous cardiac calcifications and pulmonary vascular prominence.

cardiac arrhythmia. Other patients may have progressive mitral insufficiency which may be mistakenly attributed to rheumatic disease^{4,5,7,8}. Other adults may present with a continuous murmur^{9,10,11} simulating left to right shunts of other origin such as congenital coronary artery arterio-venous fistula^{14,21}. Some adults have clinical symptoms and signs most closely resembling coronary artery heart disease and may present with classical angina pectoris and/or progressive congestive left heart failure^{6,7,8}. Angina and progressive congestive failure were the predominant findings in our patient.

Pathophysiology:^{19,22} The myocardium is most severely affected in the areas of poorest

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This work was supported by PHS Grant HE 05828.



Fig. 2 Supravalvular aortogram, LAO projection. Large, tortuous right coronary artery. No left coronary artery filling from the aorta.

perfusion by collateral vessels in ALCA; usually the anterolateral wall of the left ventricle, the septum near the apex and the base of the papillary muscles. The antero-lateral myocardium is often thinned and diffusely fibrotic and does not change in thickness during the cardiac cycle. Aneurysmal dilatation with paradoxical motion of the involved left ventricular wall during systole may be present in adults and is often present in infants. Dystrophic calcification in the infarcted myocardium has been found in 50% of specimens examined pathologically²⁴ but had not been reported radiographically prior to this report.

Mitral insufficiency is frequently present and may be due to papillary muscle dysfunction, secondary to endocardial fibroelastosis or secondary to dilatation of the left ventricle and the mitral annulus. Papillary muscle dysfunction may be due to infarction, diffuse fibrosis, endocardial fibroelastosis or left ventricular dilatation.

In the newborn, blood flows³ from the pulmonary artery through the ALCA and perfuses the left ventricular myocardium at or near systemic pressure. However, as the pulmonary resistance falls in the early weeks after birth, pressure in the anomalous left ventricular myocardium ensues with infarction and often death. If the development of adequate collateral vessels from the right coronary artery enables the infant to survive, blood flows from the higher pressure right coronary artery through collaterals to the lower



Fig. 3 Selective right coronary angiogram showing filling of the left coronary artery system via collaterals from the right.

pressure anomalous left coronary artery which in turn empties into the still lower pressure pulmonary artery. The left coronary artery develops a venous appearance. The left to right shunt through the coronary arteries aggravates the left ventricular myocardial ischemia. With the onset of congestive failure and elevated pulmonary artery pressure the direction of shunting may again reverse.

Case Report:

W.G.B., a 50 year old woman, was admitted to the University of Oregon Medical School Hospital for the third time on March 18, 1971. She complained of substernal chest pain of ten years duration and increasing dyspnea and easy fatigability of two years duration.

She had known of a "heart problem" with a murmur present from early childhood. Physical activity had been restricted throughout life. A grade 2/6 systolic ejection murmur was heard along the left sternal border without radiation and without diastolic murmur or opening snap. The liver was not enlarged. There was no peripheral cyanosis and the peripheral pulses were normal.

The electrocardiogram showed normal sinus rhythm and left ventricular hypertrophy. A Q wave was present in AVL. Frontal and lateral radiographs of the chest showed left ventricular enlargement, prominence of the vasculature

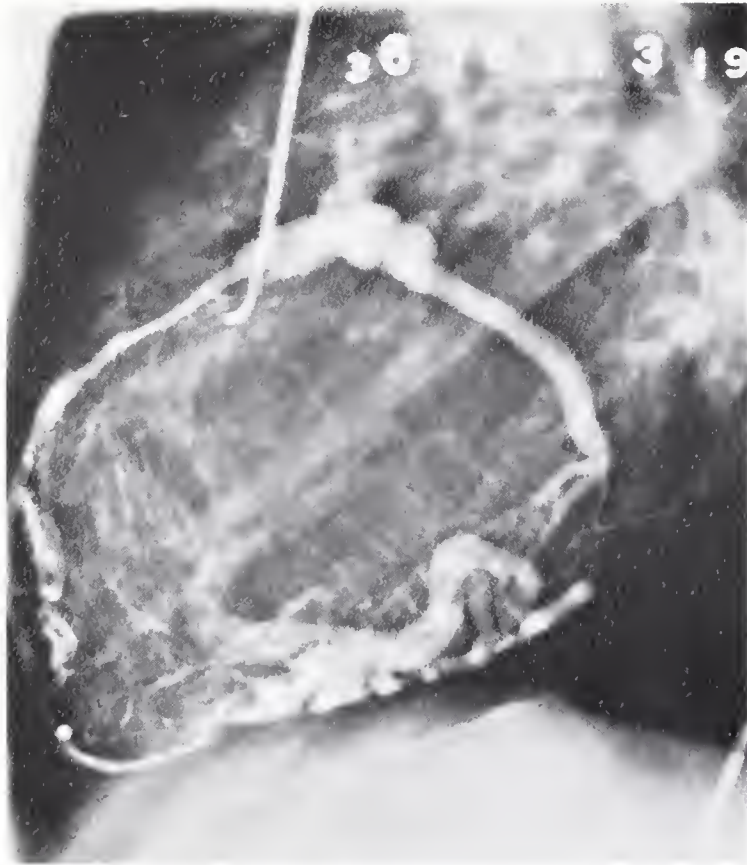


Fig. 4 Selective right coronary angiogram, later phase, showing filling of a portion of the pulmonary trunk from the left coronary ostium.

particularly in the upper third of the lungs and minimal left atrial enlargement and amorphous and nodular calcification was present in the left heart near the apex of the heart. A mild normocytic anemia was present. Serum electrolytes, P & P, BUN, blood sugar, serum cholesterol, uric acid and serum iron were within normal limits.

Coronary Angiogram:

Selective right coronary angiogram and left ventriculogram were performed.²⁰ The initial intra-aortic pressure was 105/65 mm. Hg. Left ventricular end diastolic pressure was 22 mm. Hg. before and 26 after the left ventriculogram. There was no systolic gradient across the aortic valve. The left ventricle was moderately dilated and there was moderate to marked reduction in contractility of the left ventricle. The diaphragmatic surface of the heart near the base contracted well. Minimal mitral regurgitation was present. Paradoxical motion of the left ventricular wall during systole was not apparent; however, the myocardium of the left ventricle was moderately thinned, particularly near the apex. Nodular and amorphous appearing calcification of the ventricular wall was present.

Search of the left coronary sinus with test injections failed to demonstrate origin of the left coronary artery. A supra-avalvular aortogram was then filmed in the LAO position. No left coronary origin was evident.

A very large, tortuous right coronary artery was found to take origin from the right sinus of

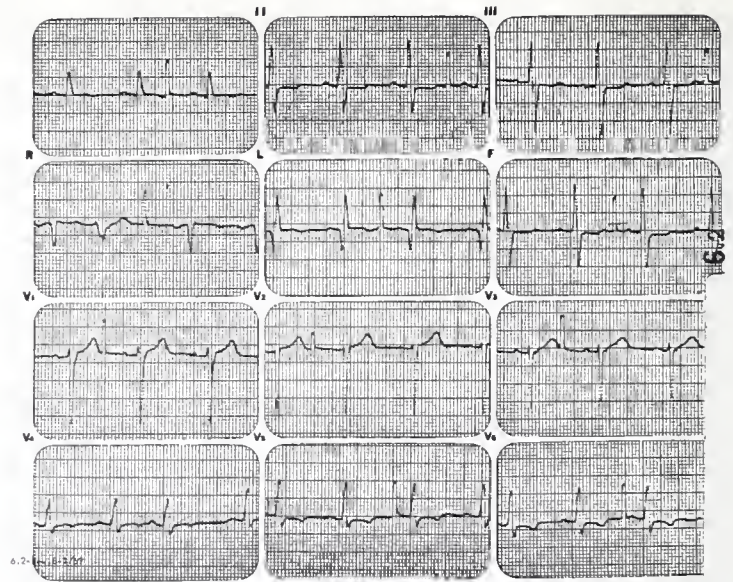


Fig. 5 Electrocardiogram showing left ventricular hypertrophy.

Valsalva on right selective catheterization. A separate, small right conus artery arose above the right coronary ostium. The right coronary artery filled the left coronary artery system through collaterals. The pulmonary artery opacified by retrograde filling from the left main coronary artery. Collateral pathways from the right to the left included: continuation of the posterior descending artery over the apex to fill the left anterior descending artery by retrograde flow; large septal collaterals from the posterior descending artery to the left anterior descending artery and continuation of the right main coronary artery in the atrio-ventricular groove as the left circumflex artery. No washout of the left main coronary artery from the pulmonary artery occurred. Four days later right heart catheterization and pulmonary angiography were performed. Pressures were as follows: Right atrial pressure 4 mm. Hg., right ventricle 36/6 mm. Hg., Pulmonary artery 38/12 mean 24 mm. Hg., left atrium a22 v22 mean 14 mm. Hg., brachial artery 110/70 mm. Hg. A 6% step-up in oxygen content between the pulmonary artery and the right ventricle indicated a left to right shunt at the pulmonary artery level. There was no evidence of right to left shunt. The cardiac output was normal. Selective catheterization of the left coronary ostium via the pulmonary artery was attempted but was not successful due to cardiac arrhythmia. The pulmonary angiogram was normal.

The patient was considered to be a good candidate for saphenous vein bypass graft to the left coronary artery with ligation near the ostium or for reimplantation of the left coronary artery to the ascending aorta but she has declined surgery.

Discussion:

The presence of an anomalous left coronary artery in the adult may not cause symptoms; may result in mitral insufficiency which is

indistinguishable from rheumatic valve disease; may mimic congenital coronary artery fistula; may closely resemble atherosclerotic occlusive coronary artery disease with angina or may suggest idiopathic hypertrophic subaortic stenosis. In our patient the correct diagnosis was not suspected prior to angiography. Initially she was considered to have rheumatic valve disease; the murmur and possible left atrial enlargement suggested mitral insufficiency. The importance of recognizing anomalous left coronary artery as a cause of mitral insufficiency in adults is emphasized by the death of two adults at the time of surgery on the mitral valve.^{7,8}

Nodular and amorphous calcification of the left heart, presumably within an area of prior myocardial infarction, as seen in this patient, has been infrequently recognized radiographically.²⁴

The clinical diagnosis of anomalous left coronary artery is difficult and requires angiography^{22,23} for confirmation; this is particularly true in the adult. In infants, supravulvar aortography usually is the angiographic procedure most appropriate; however, in adults selective catheterization of the right coronary artery²⁰ most clearly demonstrates the coronary anatomy, the important collateral channels and the direction of blood flow. Pulmonary arteriograms should be done to define the anatomy which will be encountered at surgery as well as to exclude antegrade flow through the left coronary ostium. Selective catheterization of the anomalous left coronary artery via the pulmonary artery is difficult with current techniques.

Summary:

Anomalous origin of the left coronary artery from the pulmonary trunk in a 50 year old woman has been demonstrated by selective right coronary angiography. Progressive angina pectoris and congestive failure led to admission for angiography. The true nature of her cardiac disorder was not suspected prior to angiography. The importance of recognizing this anomaly as a cause of mitral insufficiency, angina pectoris, congestive failure and continuous murmur in the adult is emphasized.

REFERENCES

1. Bland, E.F., White, P.D., and Garland, J.: Congenital anomalies of the coronary arteries: Report of an unusual case associated with cardiac hypertrophy. *Amer Heart J* 8:787, 1933.
2. Apley, J., Horton, R.E., and Wilson, M.G.: Possible role of surgery in the treatment of anomalous left coronary artery. *Thorax* 12:28, 1957.
3. Sabiston, D.C., Neill, C.A., and Taussig, H.B.: Direction of blood flow in anomalous left coronary artery arising from the pulmonary artery. *Circulation* 12:591, 1960.
4. Noren, G.R., Raghib, F., Moller, J.H., Amplatz, K., Adams, P., Jr. and Edwards, J.E.: Anomalous origin of the left coronary artery from the pulmonary trunk with special reference to the occurrence of mitral insufficiency. *Circulation* 30:171, 1964.
5. Talner, N.S., Halloran, K.H., Madavy, M., Gradner, T.H., and Hipona, F.: Anomalous origin of the left coronary artery from the pulmonary artery: Clinical spectrum. *Amer J Cardiol* 15:689, 1965.
6. George, J.M., and Knowlan, D.M.: Anomalous origin of the left coronary artery from the pulmonary artery in an adult. *New Eng J Med* 261:993, 1959.
7. Usman, A., Fernandez, B., Uricchio, J.F., and Nichols, H.T.: Aberrant origin of the left coronary artery combined with mitral regurgitation in an adult. *Amer J Cardiol* 8:130, 1961.
8. Burchell, H.B., and Brown, A.L., Jr.: Anomalous origin of the coronary artery from the pulmonary artery masquerading as mitral insufficiency. *Amer Heart J* 63:388, 1962.
9. Bayliss, J.H., and Campbell, M.: Unusual cause for a continuous murmur. *Guy Hosp Rep* 101:174, 1952.
10. Jurishica, A.J.: Anomalous left coronary artery: Adult type. *Amer Heart J* 54:429, 1957.
11. Lampe, C.F., and Vergeugt, A.P.: Anomalous left coronary artery: Adult type. *Amer Heart J* 59:769, 1960.
12. Agustsson, M.H., Gasul, B.M., and Lundquist, R.: Anomalous origin of the left coronary artery from the pulmonary artery (adult type): Case report. *Pediatrics* 29:274, 1962.
13. Gouley, B.A.: Anomalous left coronary artery arising from pulmonary artery (adult type). *Amer Heart J* 40:630, 1950.
14. Brooks, H. St. John: Two cases of an abnormal coronary artery of the heart arising from the pulmonary artery: With some remarks upon the effect of the anomaly in producing cirroid dilatation of the vessels. *J Anat Physiol* 20:26, 1885-86.
15. Edwards, J.E.: Direction of blood flow in coronary arteries arising from the pulmonary trunk. *Circulation* 29:163, 1964.
16. Edwards, J.E.: Anomalous coronary arteries with special reference to arterio-venous-like communication. *Circulation* 17:1001, 1958.
17. Rowe, A.M., and Young, W.P.: Anomalous origin of the coronary arteries with special reference to surgical treatment. *Cardiovasc Surg* 39:777, 1960.
18. Perry, L.W., and Scott, L.P.: Anomalous left coronary artery from pulmonary artery. *Circulation* 41:1043, 1970.
19. Wesselhoeft, H., Fawcett, J.S., and Johnson, A.L.: Anomalous origin of the left coronary artery from the pulmonary trunk. Its clinical spectrum, pathology, and pathophysiology, based on review of 140 cases with seven further cases. *Circulation* 38:403-25, August 1968.
20. Judkins, M.P.: Percutaneous transfemoral selective coronary arteriography. *Rad Clin N Amer* 6:467, December 1968.
21. Steinberg, I., Baldwin, J.S., and Dotter, C.T.: Coronary Arteriovenous Fistula. *Circulation* 17:372, March 1958.
22. Bookstein, J.J.: Aberrant left coronary artery. *Amer J Roentgen* 91:515, March 1964.
23. Wilder, R.J. and Perlman, A.: Roentgenographic demonstration of anomalous left coronary artery arising from the pulmonary artery. *Amer J Roentgen* 91:511, March 1964.
24. Kaunitz, P.E.: Origin of the left coronary artery from pulmonary artery; Review of literature and report of two cases. *Amer Heart J* 33:182-206, 1947.

PRESIDENT'S PAGE

Joseph K. Johnson, M.D.



Joseph Johnson, M.D.

MEDICAL EDUCATION IN ALASKA – UNDERGRADUATE AND POSTGRADUATE

The success of the WAMI Program at the University of Alaska is becoming more evident as the second year of its operation is drawing to a close. The participants, both preceptors and preceptees, have unanimously responded with considerable enthusiasm and optimism regarding the program. It is likely that the program will be continued and we hope the third year of its operation will see a full one year program for selected students. It is too early to speculate on the possibility of a two year medical school in Alaska, although considerable thought is being devoted to this idea. It is of interest that two year medical schools throughout the United States are becoming increasingly rare, most of the two year programs having been expanded to the full four year curriculum with very few getting out of medical education altogether. It would seem probable, however, that Alaska will continue with the medical education program under the WAMI system and eventually have had its own two year program at the University. As yet, our clinical teaching facilities are too limited to anticipate a full-fledged four year medical curriculum, however, with steady and rather rapid population growth in the State, this is by no means a pipe dream.

The WAMI Program has selected Kodiak as the site for its new Community Clinical Teaching Unit where one or two fourth year medical

students will have a preceptorship under the direction of the Holmes Johnson Clinic. Fairbanks was the only other community to submit a proposal and we are somewhat disappointed that we were not selected. However, it seems that Kodiak has a unique situation which makes it more typical of medical practice in a small, isolated community than either Fairbanks or Anchorage. This is in the nature of a pilot project and, if successful, may well be expanded to other communities in Alaska in the future.

Of course, individual doctors and clinics have traditionally encouraged senior medical students to spend their summers in Alaska working in unofficial preceptorships, however, these do not have official endorsement of the various medical schools and, except for valuable experience, no university credit is given for these programs. This past summer we had several medical students from different parts of the United States, and one young lady from Sweden, who worked at the Fairbanks Memorial Hospital in various capacities. Although there was no formal training program for these students, we feel that they gained much valuable practical experience.

In the field of continuing postgraduate medical education there are many projects which are currently going on, or being developed. The patient care appraisal program, although not officially adopted by the Alaska State Medical Association, is getting a tryout in Fairbanks at the Fairbanks Memorial Hospital next month. It is hoped that this will prove a valuable means of raising the level of patient care by the physicians in the Fairbanks area. It may prove to be acceptable as a PSRO under the Bennett amendment to the new Social Security laws.

The Washington/Alaska Regional Medical Program has provided a number of helpful postgraduate educational projects including the utilization of satellite relayed discussion groups and visits and lectures by specialists from the Seattle area. About ten Alaska hospitals have been integrated into the RMP sponsored automated tumor registry. This is already having an impact on education and cancer research in this State. The Alaska State Medical Association is continuing to sponsor postgraduate educational programs of different sorts. The main program, of course, is the annual State Medical Association meeting where a variety of excellent guest speakers, as well as local specialists, present papers during the scientific sessions. Our Medical Education Committee,

headed by Doctor Bill Kinn, is doing a fine job in many different areas.

In addition to our State Medical Association scientific programs, several specialty societies put on their own postgraduate education courses and seminars from time to time throughout the year. Some of the drug companies, such as Lederle, put on a scientific program at least once a year, and these are generally well attended and have proved very helpful in keeping the Alaskan physician up-to-date on new developments.

The American Heart Association, the American Cancer Society, and so forth, are also quite active in professional education, and the National Foundation (March of Dimes) has recently undertaken a research project on birth defects as related to prenatal and obstetrical care in Alaska. The Health Science Library provides a very valuable service to physicians in this State who are working on independent investigative projects. There are other projects in the field of professional education which are in the planning stage, and we feel that the opportunities for postgraduate education in Alaska are approaching those in other states. A particularly good incentive to physicians to maintain their proficiency and knowledge is the American Medical Association's Recognition Award. This is based on a three year period of postgraduate study and requires a minimum of 150 hours attendance at meetings or other educational pursuits. The award is a very attractive certificate and it is to be hoped that the majority of physicians in Alaska will apply for it. I recently received my certificate and have displayed it prominently in my office. I would certainly encourage all of our members to apply for this award.

STATUS OF MEDICAID

I regret to say that the Medicaid Program, since its inauguration September 1, 1972, has been extremely disappointing. A number of physicians have withdrawn from the program, and many others are contemplating withdrawal. The reasons for this disappointment in the program are principally the long delay in receiving payment for services which have been billed. In the case of most physicians, little or no payment has been received to date for services dating back to the September 1st beginning. This is entirely unreasonable and, in view of the considerable extra expense involved for the physician in preparing and submitting the billings to the Department of Health and Social Services, it is an intolerable situation.

It appears that the coupon system, which has been inaugurated recently, creates an extreme hardship in many instances where large families

with greater than average need for medical care receive no more coupons, they are no longer eligible for care under Medicaid. It is the general feeling of physicians in this State that the forms that are required are unnecessarily cumbersome and time-consuming to prepare, and that the information which is required is in excess of actual Federal guidelines or requirements. Other states have forms which are much simpler and require considerably fewer items of information.

There are other states where a state agency will bill third party carriers under the Medicaid Program rather than requiring the physician's office to do this work for them. In a number of other states the Medicaid forms do not require a diagnosis code, which is filled in by the State itself. The physician submits his diagnosis and a new coupon is not required for each separate diagnosis. Also, it has been brought to our attention that Pap smears are not covered under Medicaid. Withholding this service from a high risk population group is unreasonable and seems to be completely unjustified.

I think, as do almost all physicians with whom I have talked, that we have gone far beyond the call of duty in attempting to cooperate with the Department of Health and Social Services. The singular lack of success in achieving a really efficient system can certainly not be laid at the door of the private physician. Needless to say, we are continuing our efforts at negotiation with the Department on the Medicaid problem, and will continue to do so as long as the Department is willing to negotiate with us. Those of us who have withdrawn from the program, or who plan to withdraw in the near future, will of course continue to see welfare patients and give them treatment equal to that offered private paying patients at no charge. We do not believe that there will be any hardship to needy families in the State.

Based on payment thus far received for Medicaid patients, the majority of physicians seem to have spent considerably more money than they have received. Obviously, this condition cannot be tolerated any longer and it will be more economical for the private physician to simply treat the patient free and avoid the expense of paperwork necessary in order, hopefully, to receive reimbursement from the State.

The new legislature is almost certain to take a very critical look at the program which was enacted at the end of the last legislative session. I do not think that they will be happy with what they see. There is probably still hope for Medicaid in Alaska, but I feel that the physicians have done all they possibly can be expected to do to make it work. From now on its success will depend on the performance of the Department of Health and Social Services.

MUKTUK MORSELS

Bob Ogden

ALASKA MEDICAL EDUCATION AND RESEARCH FOUNDATION

The Alaska Medical Education & Research Foundation, a separate non-profit corporation formed by the Alaska State Medical Association, has recently received a portion of a \$20,000 grant from the Alaska State Department of Health & Social Services to plan "a demonstration health delivery system to deliver comprehensive health care to a selected Alaskan community which presently has no, or very little, access to medical resources".

The Board of Directors of the Alaska Medical Education & Research Foundation will soon begin the process of community selection, demographic data collection, feasibility studies, etc., in order to accomplish a plan for federal or state implementation by June, 1974.

MEDICAID

The ASMA's Technical Review Committee on Medicaid and its Executive Committee have transmitted a Professional Standards Review Proposal to the Division of Medical Assistance for consideration and funding. If funded, the Professional Standards Review program of the ASMA would provide staff to the Medical Association and would pay physicians to provide the Division of Medical Assistance "comprehensive and ongoing review of services covered under Medicare and Medicaid". The following is the body of the proposal sent to the Department of Health & Social Services.

PROPOSAL

MEDICAID AND GENERAL RELIEF MEDICAL PROFESSIONAL STANDARDS REVIEW

BACKGROUND INFORMATION

Medicaid has been implemented in Alaska and the Social Security Amendments of 1972 have become law. As a result, a pressing need for the review of medical and other health services and systems has arisen. Section 249F of the 1972 Social Security Amendments provides for the establishment of professional standards review organizations for "comprehensive and ongoing review of services covered under Medicare and Medicaid".

The Alaska State Medical Association, a non-profit corporation, has for two years had an informal professional standards review system in operation. Local and State professional standards review services have been provided to third party payees through committees established in each

of the local medical societies located in Anchorage, Fairbanks, Juneau, Ketchikan, Sitka, and Kenai.

The intent of this proposal is to refine this existing organizational structure and to provide evaluation of quality and costs of medical services. It is hoped that a system of quality assurance for other federal, state and private programs will evolve from this PSR proposal and that criteria for evaluation will be continually developed.

The implementation of such a PSR program is consistent with the position of the American Medical Association. The AMA philosophy is stated in the following quotations:

"The Council on Medical Services knows of no greater challenge facing the profession today than to secure universal acceptance and application of the review concept as the most meaningful method for creating a public awareness of medicine's efforts to assure high quality of health services at a reasonable cost, slowing the rate of escalation and health care charges, stimulating health insurance organizations to make broader protection available to more people, and retaining professional control in patient-physician fiscal and economic relationships".

"The Board of Trustees concurs and strongly urges that Peer Review be assigned the highest priority by the state and county medical societies that where these mechanisms exist they be strengthened and where they do not, they promptly be established".

The ASMA, at the invitation of the Division of Medical Assistance, welcomes this opportunity to apply for funds with which to implement a PSRO program in Alaska. It is expected that the \$62,688 requested for PSR staff, consultants, physicians services, travel and other costs will ultimately result in reduced costs to the Medicaid and General Relief Medical programs in Alaska.

OPERATING PLAN NARRATIVE

A. Goal

To provide active and ongoing review of medical services under Medicaid and General Relief Medical so as to attain quality health care at reasonable cost.

B. Mechanism

The goal will be achieved through services provided by the Alaska State Medical Association and its component medical societies.

There will be established a permanent ten-member state Professional Standards Review Committee within the Alaska State Medical Association. The primary responsibility of this committee will be to carry out the provisions of this contract and the operation of the ASMA's professional standards review program.

Within each component medical society a local Professional Standards Review Committee will be established to be responsible for local review of services as requested by the State PSR committee.

As billing forms are received by the Division of Medical Assistance they will be reviewed to determine whether or not the fees and medical procedures provided fit the fee level and utilization profiles established by the Division for specific diagnoses. If in the opinion of the

Division's medical officer the billing does not fit the established profile a request for review will be sent to the ASMA's Professional Standards Review Committee.

Upon receipt of the request the PSR staff will:

1. Notify provider of request for review.
2. Initiate staff review in terms of consistency of charges for the services.
3. If there is a question of the service provided — review requests will be referred to local medical society PSR Committees.
4. Upon receipt of review results the PSR Staff will render opinion to the Division of Medical Assistance.
5. All disputed claims which cannot be resolved between local PSR Committees, PSR Staff and the Division of Medical Assistance will be appealed to the State PSR Committee for review prior to final determination by the Director of the Division of Medical Assistance.

Opinions rendered by local and state PSR Committees to the Division of Medical Assistance will be advisory with final authority retained by the Division director.

In order for the PSR system to be effective it is important that the state committee be aware of program costs. As the budget year progresses the state PSR

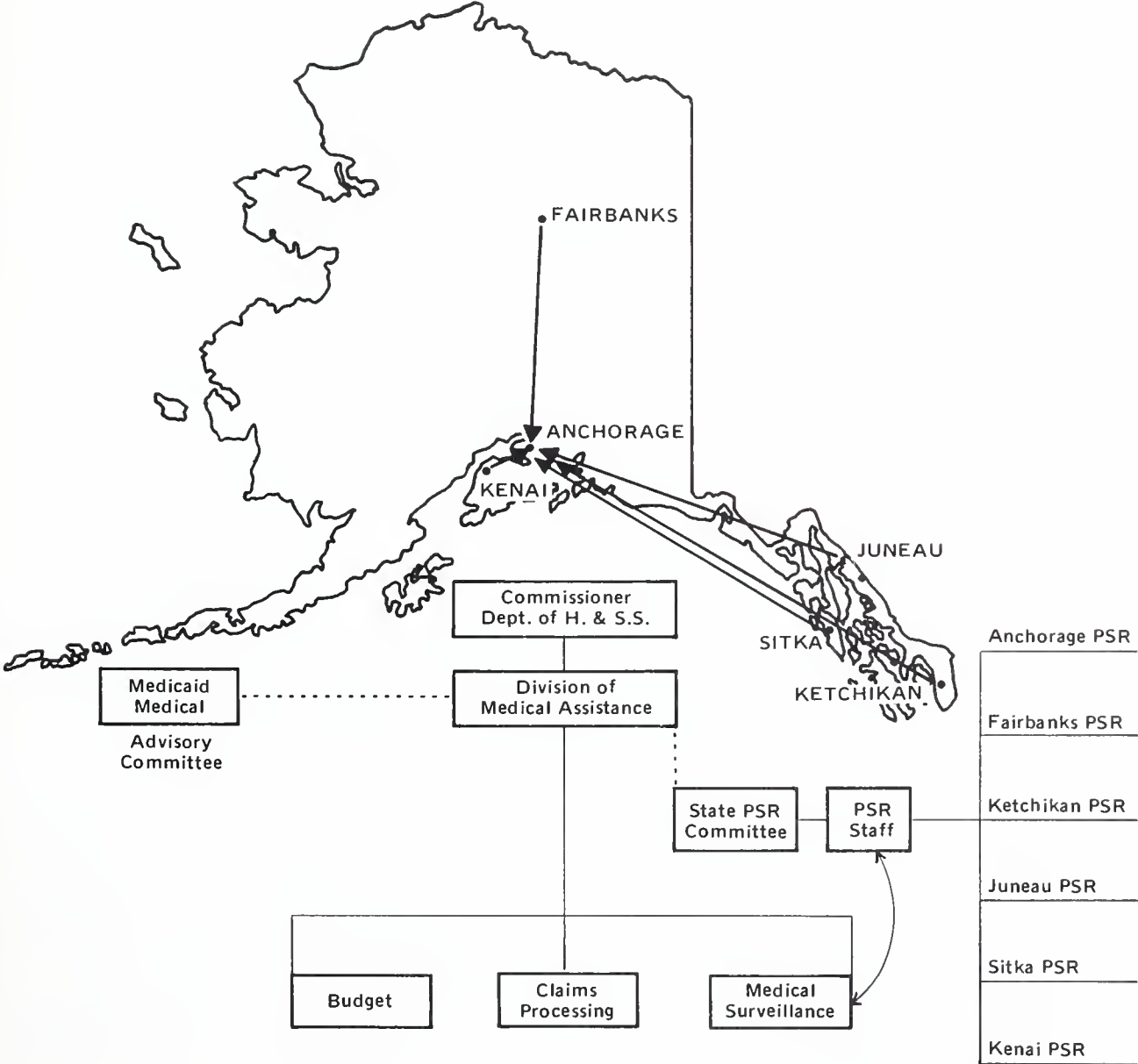
Committee will be given quarterly reports of service costs compared to the funds allocated by the State for the service portion of the Medicaid and General Relief Medical programs. If costs exceed budget the state PSR Committee will review profiles for individual physicians and services. If indicated the committee may recommend profit changes. If budget increases are necessary the state PSR Committee will assist the Division.

Physicians who wish may also request review of Division of Medical Assistance payments and authorization through the established PSR Committees. Physician requests for review will be allowed on previously reviewed claims and on those which have not been previously reviewed by the committee. Requests for review originating with a practicing physician will be processed through the PSR Committee without cost to the Division of Medical Assistance or this contract.

Review of services of physicians will not depend upon medical organization membership.

The staff will be responsible to the chairman of the state PSR Committee; i.e. minutes and correspondence of the state PSR Committee, referral to local society PSR Committees, followup on review requests to insure prompt action by local and state committees.

A diagram of the proposed organizational structure follows:



ORGANIZATIONAL DESCRIPTION

STATE PROFESSIONAL SERVICES REVIEW COMMITTEE

The state Professional Services Review Committee will be established by the President of the Alaska State Medical Association. This committee's primary responsibility will be to set the policy and provisions for carrying out the agreements of this contract and the operation of the ASMA's professional standards review activities. The committee will be composed of (1) a representative of the six local medical societies; (2) the medical officer of the Division of Medical Assistance; (3) the President of the Alaska State Medical Association; (4) the physician representatives of the Medical Advisory Committee to the Medicaid program. This committee will be advisory to the Director of the Division of Medical Assistance and will be directly involved in Medical and General Relief Medical utilization and cost control.

LOCAL PROFESSIONAL SERVICES REVIEW COMMITTEE (6)

Each local PSR Committee will be established by the President of the local medical society. The local PSR

Committees will review questioned Medicaid claims transmitted to them by PSR staff. Local PSR Committee opinions on review requests will be transmitted directly to the PSR staff.

PROFESSIONAL STANDARDS REVIEW STAFF

The staff will be responsible to the chairman of the state PSR Committee. The PSR Staff will be composed of the ASMA Executive Secretary, R.N. Coordinator, secretarial staff, and appropriate medical consultants.

ASMA'S PHYSICIAN FEE SURVEY

Recently approximately 230 questionnaires were sent to physicians in private practice throughout the state requesting information on fee guides used. The questionnaires were color-coded by regions; i.e., Southeastern, Southcentral, and Northern. One hundred eight questionnaires were returned; they were divided by regions and answers were compiled as follows:

Physician Fee Survey . . .		Southcentral		Southeastern		Northern		Statewide	
1.	Do you feel the ASMA's response to third parties about physicians' fees is adequate and correct?	56 Yes	2 No	13 Yes	1 No	36 Yes	1 No	105 Yes	4 No
2.	Do you feel the "usual, customary, and reasonable" method of determining physicians' fees is the best?	57 Yes	3 No	14 Yes	0 No	37 Yes	0 No	108 Yes	3 No
3.	Do you feel the ASMA should adopt a physicians' fee schedule for Alaska?	19 Yes	41 No	7 Yes	7 No	35 Yes	2 No		
	If yes, should the fee schedule be adopted as a state wide fee schedule or as a regional fee schedule?	6 S	20 R	2 S	7 R	1 S	36 R	9 S	63 R
4.	Do you currently use a Relative Value Schedule as a fee guide?	55 Yes	2 No	12 Yes	2 No	37 Yes	9 No	104 Yes	4 No
	Which one?								
	1964 California RVS	13		7		0		20	
	1969 California RVS	53		5		37		95	
	Specialty Society RVS	7		0		0		7	

The last question of the survey asked physicians: "If you use a relative value study as a fee guide, please indicate your conversion factors". Answers to this question are indicated by percentages of

physicians answering the questionnaire as follows. If physicians or third parties wish a copy of ASMA's detailed and specific answers to this question, a copy is available at the ASMA office.

Physician Fee Survey . . .

	Southcentral	Southeastern	Northern	Statewide
Medicine	82% of physicians reporting use the 1969 RVS with a \$1 conversion	20% use 1969 RVS with a \$1 conversion	99.7% use the 1969 RVS with conversion of \$1	77% use the 1969 RVS with a \$1 conversion
	8 % use the 1964 RVS with an \$8.50 conversion	80% use the 1964 RVS with conversions ranging from \$7.50 to \$9.50	.3% use the 1969 with a \$.75 conversion	12% use the 1964 RVS with an \$8.50 conversion
				11% use the 1969 or 1964 with a range of conversion factors

	Southcentral	Southeastern	Northern	Statewide
Surgery	68% use the 1969 RVS with a \$40 conversion	45% use the 1964 RVS with a \$9.50 conversion	91.6% use the 1969 RVS with a \$45 conversion	41.8% use the 1969 RVS with a conversion of \$45
	16% use the 1969 RVS with a \$45 conversion	36% use the 1969 RVS with a range of conversions from \$20 to \$41	8.4% use the 1969 RVS with a range of conversions from \$35 to \$50	37.5% use the 1969 RVS with a conversion of \$40
	16% use the 1969, 1964, or specialty society RVS's with a range of conversions	19% use the 1964 with a range of conversions from \$7.50 to \$8.50		10.2% use the 1964 RVS with a range of conversions 18.7% use a combination of the 1969 and specialty fee guides
Anesthesia	100% use the American Society of Anesthesiology guide with conversion factors between \$9 and \$9.50	100% use the 1964 RVS with conversion factors ranging from \$7.50 to \$8	100% use the 1969 RVS with conversion factors of \$12	56% use the ASA guide with conversion range of \$9 to \$9.50 22% use the 1964 RVS with conversion range of \$7.50 to \$8 22% use the 1969 RVS with a conversion factor of \$12
Pathology	39% use the 1964 RVS with conversions of \$8 to \$8.50	100% use the 1964 RVS with a conversion of \$6 to \$9	100% use the 1969 RVS with a conversion of \$.40 to \$.50	76% use the 1969 RVS with conversions of \$.40 to \$.50
	61% use the 1969 RVS with conversions of \$.40 to \$.50			24% use the 1964 RVS with conversions of \$6 to \$9
Radiology	100% use the 1969 RVS with conversions of \$4 to \$5	74% use the 1964 RVS with conversions of \$7.50 to \$9	100% use the 1969 RVS with conversions of \$4 to \$4.50	74% use the 1969 RVS with conversions of \$4 to \$5
		25% use the 1969 RVS with conversions of \$2 to \$2.50		23% use the 1964 RVS with conversions of \$7.50 to \$8.50
				3% use the 1969 RVS with conversions of \$2 to \$2.50

FAIRBANKS

Many of the physicians in private practice in Fairbanks have expressed their unhappiness with the Medicaid program recently enacted in Alaska by withdrawing from the program until a more realistic claims processing and forms preparation system is developed.

At the December meeting of the Fairbanks Medical Association, CHARLES TOWNSEND, M.D. was elected President for 1973; JOSEPH WORRALL, M.D. was elected Vice-President; and HENRY STORRS, M.D. was elected Secretary-Treasurer.

HERBERT EUGENE MERZ, M.D. has recently started a part-time practice at the Fairbanks Medical & Surgical Clinic. Dr. Merz is the uncle of EDWIN LINDIG, JR., M.D., an orthopedic surgeon at the Fairbanks Medical & Surgical Clinic.

ANCHORAGE

GEORGE LYON, M.D. has relocated his neurosurgery practice to 3546 LaTouche, and his new phone number is 279-9522.

DRS. MYRON MCCUMBER AND LELAND JONES have relocated their general practice to 1815 South Bragaw.

J. KIM MILLER, M.D. has recently begun practice general practice at the Lake Otis Clinic, 4050 Lake Otis Parkway.

NANCY ELLIOT SYDNAM, M.D. has re-opened her office for the practice of general medicine at 825 L Street, Suite 520, phone 272-7438.

GARY ARCHER, M.D. has recently participated in the following:

- 1) On September 19, 1972 he presented a topic as part of the Scientific Program of the Washington State Medical

Association Annual Meeting in Seattle. The subject was "Continuous Pulmonary Artery Pressure Measurements in the Critically Ill".

- 2) On September 20, 1972 he participated in a panel discussion concerning the hemodynamics of shock. This was presented before the Washington State Medical Association Annual Meeting in Seattle.
- 3) On September 23, 1972 he presented a talk as part of the Scientific Program of the Pacific Northwest Chapter of the American College of Chest Physicians in Seattle. His topic was "Hemodynamic Measurements in the Critically Ill".

During the December meeting of the Anchorage Medical Society new officers were elected. DONALD ROGERS, M.D. of 825 L Street will be the new President for 1973. PAUL

DITTRICH, M.D., 3300 Providence Drive, was elected President-elect. GUY CLARK, M.D., 718 K Street, was elected Secretary-Treasurer.

NOME

Mr. Donald Denning, Administrator, Maynard McDougall Memorial Hospital, tells us that the hospital is in critical need of a medical director. Any physician interested in full or part-time practice in Nome is asked to contact Mr. Denning at 443-2221.

JUNEAU

Juneau still has a critical shortage of physicians, especially in family medicine, pediatrics, or obstetrics and gynecology. Physicians interested in practice opportunities in Juneau should contact the administrator of the Barlett Memorial Hospital at 586-2611 or Dr. Gary Hedges, President of the Juneau Medical Society, at 586-6050.



MEETINGS

LEDERLE SYMPOSIUM

Saturday, February 17, 1973
Robert Whaley, M.D., Program Chairman

PROPOSED SCHEDULE

10:00 - 10:15	Introductory Remarks: To include: Reason for Program Timeliness Public's concept of malpractice in Alaska, etc.	William Mills, M.D.
10:15 - 10:35	Malpractice, What is it?	John Huston
10:35 - 10:55	When to Watch Your Step (To include - emergency care, battered child, problems of drug interaction, etc.)	Robert P. Fry, M.D., J.D.
10:55 - 11:15	The Defendant M.D.	Robert P. Fry, M.D., J.D.
11:15 - 11:45	Question and Answers Session	Winthrop Fish, M.D., Moderator
11:45 - 12:30	Panel: Your Day in Court (What to do if sued, What to do if subpoenaed as witness, How to give testimony and be cross examined)	Winthrop Fish, M.D., Moderator
12:30 - 2:15	Luncheon for Physicians and Wives	Glenn Crawford, M.D.
2:30 - 2:50	An Attorney's Rx for Malpractice (Record keeping, patient consent, abortions, joint responsibilities with hospitals and/or produce producers)	Crawford Morris
2:50 - 3:10	The Medical Malpractice Crisis of the 70's (What it means to the busy clinician and the attitudes of medicine and the Public)	Crawford Morris
3:10 - 3:30	What Needs to be Changed? (Recommendations for better ways of protection patient and physician under the law)	John Huston
3:30 - 3:45	Recess	
3:45 - 4:15	Question and Answer Session	Paul Isaak, M.D., Moderator
4:15 - 5:00	Panel: What Should be Done for Alaska (Problems specific to Alaska Potential enabling legislation Desirability of Boards of Arbitration versus Courts)	Paul Isaak, M.D., Moderator

THE AMERICAN SOCIETY OF CONTEMPORARY MEDICINE AND SURGERY

Announcement

Continuing Education for Excellence in Medicine and Surgery will be the theme of the 1973 Annual Meeting of the AMERICAN SOCIETY OF CONTEMPORARY MEDICINE AND SURGERY being held from February 25 to March 3 at the Fontainebleau Hotel, Miami Beach, Florida. The president of the Society is Dr. Michael DeBakey.

Emphasis will be made on Contemporary Surgical Procedures in Diseases of the Cardiovascular System, Proctology, Gynecology, Urology, Otolaryngology, Orthopedics, Gastroenterology, Reconstruction, and Esthetic Surgery.

The Council on Education of the American Medical Association has accredited the courses of the American Society of Contemporary Medicine and Surgery. A certificate will be awarded to all

enrollees as evidence of participation. More and more states demand evidence from physicians of Continuing Education.

In addition to their lectures, the speakers will hold individual or small group conferences upon request. All members are invited to participate actively by attending the group conferences. Time is available for a limited number of five-minute presentations on any subject. Admission: Members - \$50.00 Non-members - \$125.00 (Admission fees refundable to February 1, 1973)

Check payable to: Am. Society of Contemp. Medicine and Surgery

For further information write: Miss Virginia Kendall, 30 N. Michigan Avenue, Rm. 1629, Chicago, Illinois 60602



BOOK REVIEW

A HISTORY OF MEDICINE. SELECTED READINGS, edited by Lester S. King. Penguin Books, Inc. (7110 Ambassador Road, Baltimore, Md. 21207) 316 pp. \$5.75 (paper).

The history of medicine, curiously, is sometimes held in higher regard by the general public than by the medical profession. Hippocrates, Harvey, Pasteur, Jenner, Semmelweis, and Osler, though hardly household words, are names familiar to most college graduates. Their lives and deeds illuminate an exciting and proud tradition and no doubt have in fact stimulated some to choose a career in medicine.

At the other extreme is the professional historian of medicine, often a physician but also necessarily a linguist, antiquarian, and bibliophile. He takes his work seriously, concerning himself with such things as the more recondite aspects of alchemy, medieval Arabic manuscripts, and paleopathology.

Somewhere in between should be the practising physician, for whom the study of medical history can be a source of pride and inspiration or of simply relaxation and enjoyment.

This book seems to be intended for this third group. It is a collection of original texts spanning the whole tradition of western medicine from Hippocrates to our own decade. The editor has provided a scholarly general introduction and a short preface to each selection.

Dr. King, who is a Senior Editor with the *Journal of the American Medical Association*, has set out "to indicate the development of *critical thinking* among physicians, from early times to the present." In other words, the thread which runs through this book is the methodology of science, the rational and empirical process by which progress in medicine has been achieved. It is Dr. King's thesis that the physicians of yesteryear were every bit as intelligent as those of our own era. To him medical history "must describe the factors which have determined the attitudes and behaviour of physicians . . ." If their conclusions are now known to be wrong, the fault must lie in the intellectual and social climate of their times.

I suppose that it is one of the privileges of an anthologist to select his favorite writings of his favorite men. Indeed, Dr. King has included two of my own, Herman Boerhaave and John Hunter. Some of those chosen for this book strike me as odd, however, as do some of the conscious omissions. The selections from Hippocrates, James Lind, Oliver Wendell Holmes, Robert Koch, and Walter Reed are exceptionally fine. But few modern readers will find much enjoyment or edification from the writings of Paracelsus, Friedrich Hoffmann, William Cullen, or Samuel Hahnemann, although granted they all have a certain standing in the history of medicine.

In view of the editor's stated purpose, however, I am surprised to see omitted such men as Ambroise Paré, Edward Jenner, Joseph Lister, John Snow, Joseph Goldberger (pellagra), Alexander Fleming (penicillin), or Norman Gregg (rubella). All of these made exceptional contributions to scientific methodology as well as being for the most part good writers, better, in fact than some of those represented here.

One final comment: I find a paperback book on a cheap grade of paper overpriced at \$5.75, no matter what is between its covers. — Robert Fortune, M.D.

MEDICAL VIROLOGY, by Frank Fenner and David O. White. Academic Press, New York and London, 1970. 390 pp. \$9.50.

Medical textbooks are rarely enjoyable reading but this one is an exception. *Medical Virology* is a brief survey of an extraordinarily complex and rapidly evolving field. The authors, who are both Australians, have produced an excellent monograph designed for use by medical students, family practitioners, and those who regularly see patients with infectious diseases.

Virology, as the field is defined today, has many facets, embracing such seemingly diverse sciences as molecular biology, histochemistry, cytogenetics, oncology, immunology, pathology, and epidemiology, in addition to clinical medicine. Until recently, physicians had little grounding in these subjects, which indeed had relatively few direct applications to medical practice. If any have doubts that this proposition is no longer true, he should browse almost at random in this book. Virology has come a long way in the past few decades.

The first half of the book deals with the basic biology of animal viruses, including a remarkably concise but lucid descriptions of viral structure, growth, genetics, and the pathogenesis of infections in various parts of the human body. Considerable emphasis is placed on the effects of viruses on cells, tissues, the living organism, or on groups of people. The chapters on immunization, chemotherapy, and laboratory diagnosis, all of which draw on the earlier technical discussions, are particularly well done and will appeal to most clinicians.

The chapters in the second half of the book correspond to the major families of human viruses. Under each heading the common clinical syndromes are discussed briefly, in fact at times almost too briefly. The authors particularly stress the relationships between the disease and the properties of its causative agent. The last chapter recapitulates the clinical section by a brief discussion of viral syndromes and their causes.

I can recommend this book highly as an up-to-date introduction to virology. It covers briefly but exceptionally well a field which is a veritable land of opportunity where some of the most significant future breakthroughs in medicine may be anticipated. — Robert Fortune, M.D.

CALL THE DOCTOR, by Robert F. L. Polley, M.D.F.A.A.P. Parents Handbooks, 1197 112th Street, N. E. Bellevue, Washington 98004. Price, free to any physician.

Although not in the same vein as the epochal *Baby and Child Care* by Dr. Benjamin Spock, *Call the Doctor* written by Robert Polley, M.D., a well-known Seattle pediatrician, should fill a distinct gap in many neophyte parents' fund of knowledge about the questions to direct to their physicians whether during examination or over the phone about their bewildering progeny. The book is excellently illustrated by Stuart Moldrem and the format, which is composed, in the main, of very simple and concise answers to specific questions (vis à vis breast feeding, handling newborn babies, treatment and prevention of acne, what eye examinations are necessary, what are the causes of speech disorders, etc.?) is excellently presented. Particularly enjoyed by this reviewer was a well-annotated section of the book called "The Child at School" with accompanying letters from the doctor to answer the school psychologist's queries about various children's scholastic difficulties. These were distinctly of the no-nonsense variety.

Not all pediatricians would agree with Dr. Polley's brief prescriptions for a variety of childhood complaints

and symptoms, but I feel that they would relate to a great majority of them. Certainly his advice to concerned parents about when to consult physicians, either by examination or telephone, would be greatly appreciated. A copy of the book is available to any physician (gratis) by writing Parents Handbooks, 1197 112th Street, N.E. Bellevue, Washington 98004. I am persuaded that it would be an excellent recommendation for purchase for any overly concerned, anxious parent, at the suggestion of his or her physician. — John C. Tower, M.D.

THE TENTH BRONFMAN LECTURE. HEALTH CARE REFORM-THE MYTHS AND REALITIES. By Walter J. McNerney, President, Blue Cross Association. 1971. published by American Public Health Association.

At this time of inception of Medicaid in Alaska, this review is particularly appropriate. As President of the Blue Cross Association, Mr. McNerney has been exposed to the national scene in health care for many years. Addressing the American Public Health Association, he indicates the importance for Public Health to "break false images," to start to "practice community medicine as energetically as it is preached," and to help "broaden our definition of health and relevant services."

As a take off point on the need to "accelerate improvements in the health system," he quotes from the Report of the Task Force on Medicaid and Related Programs (1970) that "the country is well into a transition from considering that health is largely an individual affair to understanding that health is a community affair as well. Personal transactions, no matter how well intentioned and effectively carried out, can no longer provide the answers to what has become essentially public policy and management problems." Of significance is the fact also that the Task Force, aware that the current health system is complex, and that effective intervention will require heroic and sophisticated measures, stresses three major themes: 1) Health must remain high on the scale of social, political, and economic priorities; 2) New money alone will not guarantee either capacity or effectiveness of the health system; 3) Health care is too often delivered at the time and place and in the way convenient to the provider rather than the consumer. The consumer must play a stronger role and incidentally be provided with a greater range of choices among alternative forms of delivery, together with the information to make the purchase decision a meaningful one.

Myths which impede progress:

1. Most health services make a big difference in the health of the population — thus, with enough money, health can be purchased;
2. A major determinant of use is accessibility;
3. The greater the technology, the better the health care;
4. The proper center of health is the health department — the most democratic and accountable instrument close to the operational problems;

5. An increase in the number of physicians will lower unit prices and improve distribution of key health services to the interacting forces of supply and demand;

6. In the millenium, all care must be coordinated by the system;

7. Put enough money behind experiments and evaluation, and new productive delivery methods will emerge;

8. Our current health system is badly fragmented, a bag of concessions, an institutional salad. It is, in fact, no system at all.

This incisive readable paper clearly outlines the problems, myths, and directions that must be taken to reassess our priorities and become more realistic about the relation of input and output. "Our current health system is not endlessly inefficient or malintentioned — it is simply not geared closely enough to positive health and its inadequacy is becoming too expensive to bear in emotional and economic terms." Very readable! — Donald K. Freedman M.D., M.P.H., Director, Division of Public Health.

GENERAL UROLOGY, 7th Edition. By Donald R. Smith M.D., Professor of Urology, University of California School of Medicine. 1972. Lange Medical Publications 436 pp. price \$8.50.

General Urology was originally written for medical students and physicians in unrelated disciplines. This lucid and succinct text is now recognized as very helpful to the urologist in training and in practice.

The basic philosophy expressed is that the best aids to diagnosis are an adequate history and physical with personally performed urinalysis, augmented where necessary by an excretory urogram and voiding cystourethrogram.

Chapters which underline the breadth of this text include genitourinary embryology, radioisotopic kidney studies, problems of diagnosis of medical renal diseases, skin diseases of the external genitalia, oliguria, vesico-ureteral reflux and neurogenic bladder.

The anatomy and physiology of the uretero-vesical junction is alluded to in support of the concept of upper tract protection from bladder pressure variations and bacterial contamination.

The evaluation of the patient with suspected injury to the urinary tract is well described and illustrated.

Dr. Richards P. Lyon, in a brief presentation on oliguria, differentiates acute tubular necrosis and other organic renal lesions from severe fluid and electrolyte imbalance and urinary tract obstruction, and details the recommended therapy.

This soft, battered, single volume text of 400 pages, while not exhaustive, encompasses the major aspects of urologic practice and is eminently readable. This edition, the 7th, is refreshingly up to date, being well laid out with pertinent illustrations and diagrams appropriately labelled. — Alistair C. Chalmers M.D.

NORTHERN HIGHLIGHTS - 4

Selected Abstracts of Medicine in the North

TRICHINOSIS FROM BEAR MEAT

Clark, P.S., Brownsberger, K.M., Saslow, A.R., Kagan, I.G., Noble, G.R., Maynard, J.E.

Bear meat Trichinosis. Epidemiologic, serologic, and clinical observations from two Alaskan outbreaks. *Annals Internal Med.* 76:951-956, 1972.

This paper summarizes studies relating to a small outbreak of bear meat-associated trichinosis which occurred in Anchorage during the summer of 1968. With the exception of Dr. Brownsberger, who is in private practice in Anchorage, the authors are with the Center for Disease Control.

Three cases of trichinosis were diagnosed in persons who had eaten meat from a black bear shot 100 miles northeast of Anchorage in June 1968. The meat from this and a second bear had been frozen until prepared for consumption. Thirty persons were examined by various serological tests. Three patients presented with a typical clinical picture of trichinosis and two had evidence of a sub-clinical infection.

Of the 30 persons examined, 3 were positive by the latex agglutination test, 4 by the bentonite flocculation test and 5 by the charcoal flocculation test. One of the clinical cases was negative by the latex agglutination test.

All three clinical cases were in persons who ate meat from the first bear, despite the fact that the meat had been stored in a home freezer for 81 days. One of the sub-clinical cases resulted from eating the meat from the second bear, which had also been frozen. It is suggested that ursine trichinae may be more resistant to cold than porcine larvae and that thorough cooking remains essential to prevent infection.

All three overt cases were treated with thiabendazole and all reported relief of muscle pain and tenderness, improvement in appetite, and elevation in mood. Anorexia and nausea were noted as side effects.

The authors conclude that the charcoal flocculation test may be more sensitive than either the bentonite flocculation or latex agglutination tests. In addition, the test is rapid, simple, and inexpensive. The available evidence indicates that the antibody is long-lasting.

Emson, H.E., Baltzan, M.A., Wiens, H.E.

Trichinosis in Saskatchewan. An outbreak due to infected bear meat. *Can. Med. Assoc. J.* 106: 897-898, 1972.

This brief report describes an outbreak of trichinosis occurring in a band of Chipewyan Indians from Northern Saskatchewan in November 1970. The first two authors are on the staff of St. Paul's Hospital, Saskatoon, and the third is a general practitioner from Lac La Ronge, Sask.

A hunting party of seven shot a hibernating bear, presumably a black bear (*Ursus americanus*) and all partook of the meat, after boiling it for about one hour. All became ill approximately 10 days later with fever, chills, muscle pains, and edema of legs, hands, and periorbital regions. Two cases, a young man and his pregnant wife, were sent to Saskatoon for a more intensive workup. Both had muscle biopsies positive for *T. spiralis* and were treated with prednisone. Both recovered uneventfully and the woman delivered a healthy infant several months later.

This is thought to be the first report of trichinosis from bear meat from the Prairie provinces.

CALIFORNIA ENCEPHALITIS IN THE NORTH

McLean, D.M., Goddard, E.J., Graham, E.A., Hardy, G.J., Purvin-Good, K.W.

California encephalitis virus isolations from Yukon mosquitoes, 1971. *Amer. J. Epidemiology* 95: 347-355, 1972.

In recent years Canadian investigators have demonstrated the presence of California encephalitis virus (CEV) in many areas of the Province of British Columbia as far north as Dawson Creek. This study extends their research to the Yukon Territory where the virus was recovered in insects as far north as Whitehorse (lat. 61° N.). The authors are with the Department of Microbiology of the University of British Columbia, Vancouver.

Mosquitos of the species *Aedes canadensis* were collected from a number of locations in the Yukon Territory during June and July 1971. Strains of CEV were recovered from 12 out of 84 pools, mostly from an area within 50 miles of Whitehorse. Those collected from the area near Dawson City (64° N.) were negative for the virus.

No virus was recovered from 25 pools of the rabbit tick *Haemophysalis leporis-palustris* from British Columbia.

The authors also collected some 1313 small mammals from various locations in the Yukon Territory for evidence of CEV antibody. The serum of 12% neutralized the Grey Sage strain of CEV. Nineteen of the 87 positives were collected near Dawson City. The antibody incidence was highest in the snowshoe hare (*Lepus americanus*) but antibodies were also found in the parka squirrel, (*Citellus undulatus*), the red squirrel (*Tamiasciurus hudsonicus*, and other small mammals.

No overt or sub-clinical human infections have yet been encountered in the Yukon Territory, although serological evidence has been found in humans in Canada as far north as Dawson Creek, B.C.

The authors feel that the virus in the north is maintained in nature principally by a cycle involving mosquitoes and snowshoe hares, though other small mammals may be implicated.

Feltz, E.T., List-Young, B., Ritter, D.G., Holden, P., Noble, G.R., Clark, P.S.

California encephalitis virus: serological evidence of human infections in Alaska. *Canadian J. Microbiol.* 18: 757-762, 1972.

The purpose of this study was to search for evidence of human infection by the California encephalitis virus (CEV) in Alaska. The authors are with the Arctic Health Research Center and Ecological Investigations Program of the National Center for Disease Control.

In a preliminary survey of sera from residents of several parts of Alaska, antibodies to CEV were found only in the people of east-central Alaska. The subsequent investigation was confined to the villages of Tetlin, Tanacross, Northway, Dot Lake, and Mentasta.

Serum from 329 residents of these villages was collected in July 1968 and tested by both the hemagglutination inhibition (HI) and the plaque reduction neutralization (PRN) methods. Thirty percent were positive by the HI test and 72% by the PRN test. The proportion of positives increased with age, with children under 10 rarely

showing evidence of infection. No sex differences in the prevalence of antibody were demonstrated.

Despite the widespread occurrence of antibody evidence of infection, no clinical cases of California encephalitis have been described in Alaska. Of a group of 95 individuals whose serum converted from negative to positive since 1968, only 10 reported any symptoms, such as fever or headache, that might have been associated with a CEV infection.

This paper affirms that CEV virus is indigenous to Alaska. In addition to the serological evidence in humans, the virus has been isolated from a snowshoe hare and from four mosquito pools in the same region of the State. Of the 233 individuals with neutralizing antibodies, 88% had never left Alaska.

The authors speculate that if the snowshoe hare is the important natural host for the CEV, long-term fluctuations in human infections might be anticipated, owing to the periodic fluctuations in population density.

NOTES ON NORTHERN HEALTH PROGRAMS

Cameron, D.G.

Health services in the north. *MGH News* Autumn 1971, pp. 14-15.

This short paper describes the general activities of the Canadian Northern Health Service in the Baffin Zone and specifically the support role played by McGill University Faculty of Medicine. The author is Physician-in-Chief at the Montreal General Hospital and Director of the Baffin Zone Project.

The Zone includes Baffin Island, Southampton Island, and the Melville Peninsula, with a population of 4,000 Eskimos and 2,000 others. Each major settlement has a Nursing Station, staffed by 1 to 3 nurses specially trained in midwifery and public health. At Frobisher Bay, the largest community, there is a 35-bed general hospital which serves as the headquarters for the Director of the Medical Service for the zone. The nursing stations are connected to the hospital by radio-telephone, much as in the bush areas of Alaska.

A few years ago various Canadian medical schools were asked to assist the Northern Health Service. Since that time McGill has provided medical staff, both general medical officers and rotating residents in Medicine and Pediatrics, for the hospital at Frobisher. Visiting specialists from the school also hold clinics at Frobisher or in outlying areas. The teaching hospitals in Montreal, of course, provide back-up support for serious problems which cannot be handled in the North.

Whitney, D.K.

Making room for more. *Health Services World*, May-June 1972, pp. 20-23.

In September 1971 an unusual experiment to help meet the shortage of physicians in the Pacific Northwest was launched. Under a three-year grant of \$900,000 from the Commonwealth Foundation, the University of Washington School of Medicine and the Arctic Health Research Center have developed a program to bring a unique dimension to undergraduate medical education.

Known as the WAMI Program (for Washington, Alaska, Montana, and Idaho) the plan permits students enrolled in the School of Medicine to take one or two semesters in Alaska, or eventually elsewhere.

The first phase of the program brought 9 students to the University of Alaska where they receive basic courses in biochemistry, microanatomy, and physiology. They also have the option of elective courses, including a preceptorship with local private physicians and work in some of the field hospitals of the Alaska Native Health Service.

Thus far the WAMI experiment has been enthusiastically received by the students, their teachers, and the medical profession of Alaska. Hopes are everywhere expressed that the program will fulfill one of its principal objectives: that is, to attract physicians to some of the smaller communities in the Northwest.

Diagnosis by satellite: Doctors hail Alaska Test. *Science News* 102: 22, July 8, 1972

This short paper summarizes what has been going on in Alaska during the past couple of years to improve medical communications with the remote areas of the State.

The National Library of Medicine, through its Lister Hill National Center for Biomedical Communications, has supplied a total of 26 VHF radios in various locations in Alaska, all of them capable of intercommunication via the satellite known as ATS-1. This network has been found to be far more reliable than the familiar short-wave radio since the satellite communication is not affected by ionospheric conditions.

There are ground stations in all the Alaska Native Hospitals (except Mr. Edgecumbe) and in several private hospitals as well as in a number of Native villages. The greatest use of the system thus far has been in the region served by the Tanana Hospital, where the daily medical traffic is beamed via satellite. Also the system has been invaluable in bringing St. Paul Island into closer touch with the Alaska Native Medical Center.

The project, though largely funded by the Lister Hill Center, is also co-sponsored by NASA, the Alaska Area Native Health Service, and the Geophysical Institute of the University of Alaska. — Robert Fortune, M.D.

Classified

NORTHWEST ALASKA — PHYSICIANS

The Norton Sound Health Corporation, a regional consumer controlled medical delivery system serving fifteen Eskimo villages is seeking applications for physicians services to commence July 1, 1973 or before.

The area served by the Corporation is characterized by high mortality and morbidity incidence in sixteen isolated communities ranging from 70-550 persons, spread over 79,000 square miles. For these reasons, the Corporation relies on indigenous paraprofessionals as primary care providers, supported by professional services.

The job description for Corporation physicians include the following:

1. To travel to the outlying villages and hold periodic clinics.
2. To provide services in a small community hospital.
3. To serve as a medical resource to the Health Aide Training staff in structuring ongoing paraprofessional medical training curriculum.

Salary negotiable, with minimum range of \$30-\$35,000 per year and housing allowance. Write to Caleb Pungowiyi, Executive Director, Norton Sound Health Corporation, Box 966, Nome, Alaska 99762.

FAMILY PLANNING PROGRAM

Physician Education Program in Family Planning at UCLA. Sponsored by the American College of Obstetrics and Gynecology. Approved for credit by the American Academy of General Practice. Six (6) courses for six (6) physicians each from January through June 1972. Seven day individualized program with a "core" curriculum and elective courses. Didactic, clinical, surgical, and community experience in Family Planning. For more information contact Irvin M. Cushner, M.D., OB-GYN Department, UCLA, Center for Health Sciences, Los Angeles, California 90024. Telephone: (213) 825-1046.

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Due to an automobile accident on December 24, 1972 resulting in my total disability, I am forced to sell my practice of general dentistry located in Anchorage, Alaska.

Interested parties please write:

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1840 W. Northern Lights
Anchorage, Alaska 99503

Attn: C.R. Munns D.D.S.



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ALASKA Medicine

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FROSTBITE AND HYPOTHERMIA - CURRENT CONCEPTS

INTRODUCTION

W. J. Mills, Jr., M.D.

Prior to the Korean War, little information was available to the clinician treating frostbite and hypothermia, Alaska was a natural laboratory. The stimulation for investigating frostbite came as a result of a field clinic to a fishing community in Alaska where a group of patients were seen, all a crew of one vessel, who had sustained BK or AK amputation from frostbite and cold injury after shipwreck. This seemed such a large price to pay for this injury that effort was made to learn more of its pathogenesis and care.

Encouragement for further progress in the treatment of frostbite came about this time from supportive experimental reports using lab animals, from the papers of Lange³, Quintanella², Fuhrman and Crismon⁶, and Meryman¹, and others¹. From others came suggestions that perhaps frostbite was a complex phenomenon including not only vascular change leading to gangrene, or mechanical damage to cells by ice, but dehydration of cells, protein denaturation, intra and extra cellular biochemical changes.

It soon became obvious that one of our early problems was prevention of infection, this latter complication causing as much tissue loss as loss of vessel patency. Soon after that demonstration, we were aware that even if anatomy was preserved by thawing methods or medical care, without the use of physiotherapy, small joint motion was lost from either immobility or cold arthritic changes in bone.

Impetus to the program of investigation was given in December 1956, by Dr. Peter Hamill, the District Medical Officer of the U.S.P.H.S. Hospital in Tanana. He had read of Meryman's work suggesting that rapid rewarming might be helpful, and Dr. Hamill then used this method to rewarm a patient with severe frostbite of feet and hands, hypothermia, all in a warm tub of 100° F.

Early in the investigation here, a contract* from the Office of Naval Research was obtained that enabled increased clinical investigation at the Alaskan level. Throughout the literature there were

scattered reports of the use of rapid thawing but the results were said not to be good. Much of this poor result may have been due to failure to recognize the importance of avoidance of infection, restoration of motion, and the maintenance of circulation. Rapid rewarming has been an effective thawing method. This form of care received poor press and was in great disrepute as a result of the writings of Baron Larrey, Napoleon's chief physician during the Russian Campaign. In his memoirs, he wrote of the "congelation" effect, and the gangrenous changes that occurred after thawing. However, not for a hundred years was it appreciated that his method of rapid thawing was camp fire warming, therefore by excessive heat or temperatures greater than 150 to 170°, and that as demonstrated in this issue, the use of excessive heat is disastrous method of thawing and one where changes are irreversible and result in amputation at high levels. Further advances in the care of frostbite was advanced by Dr. Mundth who espoused the use of low molecular weight dextran. The summary of this method, as reported by Lt. Col. William Doolittle, will be presented in another issue of *Alaska Medicine*. Recent experimental work by Karow and Wells, regarding the alterations and extra cellular bound water, may prove helpful in our understanding of the pathogenesis of cold injury.

The Alaskan experience is a combined result of all the doctors and patients in our area, with special thanks to the aid of Dr. William Doolittle, Dr. Ed Lindig, and Dr. Petajan of the Fairbanks area, Dr. Robert Grossheim of the Alaska Native Hospital, Dr. Jack Roy of the Air Force Hospital at Elmendorf, with a note of special appreciation to Dr. Robert Whaley, Dr. Winthrop Fish, Dr. Rodman Wilson, Dr. Keith Brownsberger, Dr. Michael Hein, and Dr. Fred Hood, here in Anchorage, for all their interest and cooperation, and to Dr. Meryman and all of his colleagues in the laboratory who helped us put it all together.

*NONR-3183(00) (NR105-249) Between the Office of Naval Research, Department of the Navy, and William J. Mills, Jr., M.D.

FROSTBITE

A DISCUSSION OF THE PROBLEM AND A REVIEW OF AN ALASKAN EXPERIENCE



William J. Mills, Jr., M.D.

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William J. Mills, Jr., M.D.*

INTRODUCTION

The importance of cold injury as a military medical problem is only too well known. Over one million cases have been recorded during the two World Wars and the Korean War, excluding Soviet and Chinese casualties. But, since cases may be scattered and escape compilation, it is not generally appreciated in this country, that cold injury is a significant medical problem during peace time as well, particularly in the subarctic areas of the world.

Two major categories of cold injury are recognized: non-freezing injuries of the immersion or trench-foot type, and the more acute freezing injury, properly designated as frostbite. Much of the cold injury seen during wartime is of the immersion foot, non-freezing type. Exposure is of many hours or days, and the result is an injury noted for its extensive edema, pain and slow recovery, and its long-lasting sequelae of pain, hyperhidrosis and sensitivity to cold. An additional late problem may be intermittent local ulceration, painful cutaneous fissuring, or chronic infection.

Most civilian injuries, on the other hand, result from a brief, more acute exposure to subfreezing temperatures. The sequence of events seen in a typical case of acute frostbite is as follows. Prior to thawing, the part is hard, cold, usually white and anesthetic, appearing solidly frozen, full thickness of the part, even in areas where freezing may actually be superficial. Thawing is often painful, particularly when accomplished rapidly. Delay in thawing is associated with less pain and may account for the popularity of ice, snow or ice water as a thawing media in many areas where self care is practiced. Following thawing, the part becomes flushed, often with an ominous purple hue.

The injured extremity is usually edematous with large serum-filled blisters developing an hour to several days following thawing. Unless accidentally broken, the blebs will remain intact until the fourth to tenth day when resorption of fluid begins and spontaneous rupture of the bleb may occur. As the blebs dry, a hard eschar develops on the injured surface. This eschar may be quite black, giving a false impression of deep gangrene. However, within three to four weeks, the eschar begins to separate spontaneously, revealing delicate but healthy epithelial tissue below.

When injury is so severe as to preclude tissue recovery, blebs are absent and the tissue remains cyanotic and cold. These areas, usually the distal phalanges, will show evidence of beginning mummification, often within a few days. Over a period of days, weeks or months, demarcation between healthy and dead tissue becomes more pronounced; the viable tissues separate and retract

from the mummified until spontaneous amputation of the soft tissue is essentially complete.

It must be emphasized that the foregoing description is based on circumstances uncomplicated by infection or surgical intervention. Infection or premature debridement may lead to unnecessary tissue loss, osteomyelitis with successively higher amputations, extensive skin grafting and prolonged hospitalization. The prevention of infection and the avoidance of unnecessary surgical intervention are essential for the preservation of the maximum amount of viable tissue.

The ultimate mechanism of tissue injury from freezing is unknown. However, it does appear that the extracellular ice crystals that form with the slow rates of freezing found in clinical frostbite do not cause mechanical injury sufficient to produce tissue death. The primary injury is presumed to be biochemical, resulting from the removal of water to form ice. Extreme dehydration is produced, with a concentration of solutes, particularly electrolytes.¹

One of the most important effects of tissue freezing is the vascular stasis that develops following thawing. Quintanella, *et al*,² Lange, *et al*³ and, more recently, Mundth,⁴ have studied the microcirculation of experimental animals following freezing and thawing. Immediately following thawing the circulation is apparently unimpaired, but within a few minutes evidence of obstruction can be seen in the venules. Mundth reports that the obstruction appears to result from aggregations of platelets. Erythrocytes pile up behind them and stasis extends back through the capillary bed to the arterioles. Within two hours or less, there is complete irreversible stasis in the thawed tissue and the vessels are totally filled with a structureless, hyalinelike material. There is tissue edema and evidence of the extravasation of hemoglobin into the perivascular spaces.

On the basis of such observations, it was naturally assumed that much of the tissue loss in frostbite might well result from secondary vascular stasis and not from the primary effects of freezing. Earlier attempts to reverse or prevent the stasis were generally unsuccessful, although some clinical benefit was reported by Lange, *et al*⁵ using continuous heparin infusions. No satisfactory evidence existed that tissue cells were not irreversibly damaged by the primary freezing injury and might fail to survive even if the circulation were maintained.

Mundth, *et al*⁴ has investigated the use of low molecular weight Dextran following experimental freezing in rabbits. Observation of the microcirculation indicated that the Dextran did alleviate the post-thawing circulatory obstruction.

Infusion of this material as late as two hours following thawing markedly reduced tissue loss in frozen rabbit feet. This is presumptive evidence that some of the injury from freezing is not necessarily irreversible and that maintenance of the circulation may permit the recovery of tissue otherwise doomed.

A number of workers, particularly Fuhrman and Crismon in 1947,⁶ demonstrated impressive results by thawing experimentally frozen animal extremities, in water at 42° C. These studies were repeated with varying success by others.^{2,7,8} Although some results could be questioned on the basis of uncontrolled duration of exposure to the frozen state,¹ where this factor was controlled, there did appear to be a very real reduction in tissue loss following rapid thawing in experimental animals.⁸

A wide variety of clinical approaches to frostbite have been reported in the literature and one can find examples of almost every conceivable therapeutic measure. Attempts to assess various treatments usually suffer from lack of diagnostic criteria and an insufficient number of cases for statistical analysis. Much of the literature is concerned with problems of late treatment and sequelae. Of the promising early clinical procedures, one of the most encouraging has been that of Shumacker and associates^{9,10} who used sympathectomy to improve and maintain circulation.

A highly successful therapeutic routine has also been developed by Campbell¹¹ and is used by the International Alpine Rescue Commission. Thawing is achieved in a bath initially at about 50° F. (10° C.) and gradually increased in temperature, reaching 104° F. (40° C) in about thirty minutes. This technique is reported to prevent the pain of thawing. An open, dry procedure is recommended with limited debridement of bleb coverings after their rupture or collapse, and the application of silver or aluminum foil over granulating areas.

In Alaska prior to 1955, frostbite was treated by a variety of methods including rubbing with snow, thawing in an ice or snow bath, spontaneous thawing indoors, or rarely, immersion in warm fluid.¹⁸ Subsequent care varied from total neglect to early surgery. Tissue loss was not uncommon and a distressing number of mid-foot and below-the-knee amputations had been reported. At this time, a series of studies was begun, in an effort to establish a uniform routine for both early and late treatment, to improve our own results and, in particular, to determine whether the beneficial results reported after rapid thawing of animal extremities could be duplicated in clinical injuries.

It is now possible to report on a series of two hundred (200) patients with frostbite, of whom one hundred and thirty (130) were treated

throughout according to a fixed therapeutic routine. Of this group, forty-six (46) were initially thawed in warm water. Sixty-eight (68) of the two hundred patients were treated by other methods that did not include rapid rewarming in warm water, or post thawing physiotherapy, whirlpool or open care. Two patients of this group of two hundred were immediately thawed with a warm water bath, but received other methods of post thaw care.

METHOD OF TREATMENT

Patients seen prior to thawing of the extremity were at first thawed rapidly by immersion in well-agitated water maintained at between 100° and 112° F. (38° to 45° C.) Subsequent observations and second thoughts have resulted in a revision of the higher limit downward to 108° F. (42° C.) When thawing is conducted in the hospital, a whirlpool bath can be utilized for that purpose. Such rewarming is reserved only for patients seen prior to thawing. This treatment is considered useless and perhaps injurious to extremities no longer in the frozen state.

On admission, a frozen extremity appears white, yellow-white, or mottled blue-white, hard, cold, insensitive, and presents the illusion of being frozen solid. Even a relatively shallow freezing may give this appearance and an estimate of the depth and severity of the injury is impossible at this time. Early in our investigation we discarded the conventional terminology of first through fourth degree frostbite as a prognostic impossibility and have attempted only to describe the injury as superficial or deep. Even so, such an estimate may be changed by the method of thawing. A presumed deep injury, rapidly thawed, may assume the appearance of a superficial injury, while a superficial injury, thawed in ice or snow bath or by other delaying means, may then appear as a deep injury, the viability of underlying structures presumably having been jeopardized.

Immersion of the frozen extremity in the thawing bath is painful to the patient and sedatives or analgesics are used as indicated. As thawing proceeds, flushing will progress distally down the extremity. Thawing is continued until the flush has extended to the tips of the extremities and the immersion is then promptly terminated. The flushing may be an ominous purple in color despite the excellent results that can be anticipated following this mode of thawing. This burgundy hue is particularly associated with higher thawing temperatures. With rapid warming (100° to 112° F.) sensation returns to the affected part when thawing is complete. Sensation remains until the blebs develop and separate the surface layers. In no other method of thawing have we observed this.

Sensation remains absent for weeks when frozen tissues are allowed to thaw spontaneously in air or by delayed means such as in an ice or snow bath.

Following thawing, the patient is hospitalized with complete sterile precautions. The extremities are kept on sterile sheets under cradles. Sterile cotton pledgets are placed between the toes. The patient is kept in strict isolation with attendants masked and gowned. No dressings, ointments or other applications are used. Treatment is completely open. As blebs appear, every precaution is taken to avoid their rupture. In addition to the sterile precautions, infection is controlled by cleansing the extremity for twenty minutes twice daily in a whirlpool bath at 90° to 98° F. A mild disinfectant soap is used in the bath*. Patients who have already thawed prior to admission are placed on the identical routine save that the initial thawing procedure is omitted.

Ideally, the blebs will remain intact and after five to ten days their serous contents begin to be resorbed. In some cases the blebs are accidentally ruptured and in other cases the patient may be admitted with blebs already ruptured. No attempt is made to debride. This is left to the motion of the separating tissues prematurely. If edges are trimmed, use care, avoiding damage to fragile tissues.

Of critical importance to the ultimate functional result is constant energetic active exercise of both large and small muscles and intermittent elevation of the extremity. As the blebs dry, hard, often black, eschars form. Where these prevent motion of joints they may be carefully split on the sides or dorsum of the digits. However, they are never removed but are allowed to be separated and gently debrided by the motion of the whirlpool. One of the many virtues of the whirlpool bath is the opportunity it affords for active exercise. The dried blebs and crusts are softened during the washing and the patients report greater ease and comfort of motion. The importance of active joint motion cannot be over-emphasized, particularly for the prevention of flexion-contractions of the digits, not an uncommon sequela of frostbite even when complete anatomical preservation is achieved.

The use of water and whirlpool is often criticized on the basis that it is a "wet" regimen, a total misunderstanding of its use since, within minutes of removal from the whirlpool bath, the parts are dry and exposed to the air under a protective cradle.

We have been greatly impressed by the ability of the whirlpool bath to cleanse gently, to debride, to promote circulation, to permit and encourage active motion and to impart a sense of well-being to the patient. We have been particularly impressed

with the efficiency with which whirlpool controls infection, even in cases that have come to us complicated by maceration and advanced wet gangrene. We wish to emphasize that whirlpool therapy is a central element in our therapeutic regime and responsible, in our opinion, for much of our success in minimizing tissue loss following severe injuries.

Antibiotics are rarely necessary save for deep infection, again because of whirlpool lavage of superficial structures. No narcotics are used in uncomplicated cases after initial thawing. Anti-tetanus therapy is used where indicated by associated trauma. Special problems related to concomitant fracture or other special situations will be discussed subsequently.

When the eschar has begun to slough in the whirlpool and healing is clearly on the way, sterile precautions are discontinued but whirlpool and active exercises are rigidly pursued. Where distal parts of the extremity are to be lost and the part remains black and cold, often no debridement is done until spontaneous amputation of the soft tissue is virtually complete. This may require anywhere from three weeks to four months. The mummified portion may then be surgically removed without danger of retraction, infection or the necessity of skin grafting or subsequent revision of the stump.

The therapeutic regime, in summary, consists of *rapid thawing where possible, avoidance of infection, whirlpool, continual active exercise* with periodic elevation, *prohibition of surgical debridement* and *postponement of surgical intervention* pending complete demarcation, with spontaneous amputation of soft tissues.

RESULTS

The first 200 patients with a total of 413 cold-injured extremities have been treated according to the foregoing procedures. Evaluation of 500 patients is in process now, generally confirming these initial impressions. Cases of wet-cold, non-freezing injury have been excluded from this series. The first 51 patients treated have been reported in detail in a previous paper¹² and Washburn¹³ has summarized our methods and several of our cases in an article on arctic problems published in the *New England Journal of Medicine*.¹⁴

Probably the single greatest obstacle to a comparative analysis of frostbite therapy is the impossibility of making any quantitative assessment of the extent of injury prior to the institution of early therapy. In the past, all criteria by which frostbite was partitioned into degrees of injury have been based on ultimate outcome and tissue loss, even though theoretically used in initial

* We have used pHisoHex and Betadine.

diagnosis. In fact, no method or set of criteria exist for evaluating the injury prior to thawing. Histories are totally unreliable since freezing is generally insidious and clothing and special contributing factors prevent direct correlation of temperature and wind conditions with the severity of the injury. Thus the direct comparison of individual clinical cases is meaningless, placing greater burden on clinical impression and requiring the assembly for statistical analysis of a larger number of cases than would be necessary for the study of a more quantifiable disease.

No attempt, therefore, has been made to estimate degree of injury prior to therapy. Cases have simply been evaluated on the basis of end result, both functional and anatomical. Table I explains the classifications used. Where a single individual has had multiple extremities involved, he has been classified on the basis of the most severely injured. Table II compares the results obtained in patients whose frostbitten extremities were treated throughout by our standard program including rapid thawing, with those receiving the same standard program without rapid thawing; those treated by others, by other methods, and only seen by us following the resolution of their frostbite; and with two cases which were rapidly thawed but treated by others by methods other than our standard routine. Table III illustrates the results achieved when injuries treated by our standard routine are compared on the basis of the method of thawing. Both functionally and anatomically the percentages of extremities with good to excellent outcome are nearly identical regardless of whether extremities received rapid or slow thawing. Although slowly thawed extremities apparently suffered more tissue loss than those rapidly thawed, this is in part explained by the fact that some of these suffered refreezing or were thawed by methods felt to be deleterious such as by ice and snow and excessive heat. Those extremities receiving neither rapid thawing nor our standard routine showed a very high percentage of tissue loss and major amputation, in our opinion largely due to uncontrolled infection and premature surgery.

Table IV illustrates the distribution of injury produced by refreezing or by deleterious methods of thawing. The preponderance of poor results is evident.

Table V illustrates the influence of infection or subsequent results. Only two of the cases without infection lost tissue, while 25 of those with superficial infection and 29 of those with deep infection did. Seven patients in the "E" category, and one in the "F" category, received whirlpool therapy.

EVALUATION OF SYMPATHECTOMY

We have studied the results of post-thaw lumbar and cervical sympathectomy in patients with apparent bilaterally similar injury to hands or feet, or both. The sympathectomy has been performed on one side only, utilizing the untreated extremity as a control. Eventual contralateral sympathectomy may follow.

Unilateral ganglionectomy has been performed as early as twelve hours and as late as three weeks in the acute cases. The results to date are interesting, somewhat different than expected, and quite definite. The effects of sympathectomy have been assayed on the basis of recordings of tissue temperature using thermistors superficially, intramuscularly and subcutaneously placed. Our results to date are somewhat similar to those reported by Isaacson and Harrell.¹⁵ In almost all cases our patient was happy to have had the sympathectomy performed. This was so until approximately six months to one year had elapsed. Complaints then were often that the ganglionectomized extremity was "too dry". Regardless of the time of the procedure, relative to the date of thawing, it did not appear to preserve tissue. In fact, the extremity not subjected to ganglionectomy often showed more preservation of tissue.

However, there were favorable results which appeared to be associated with the procedure. Infection, if present, superficial, or deep, was almost always rapidly resolved, often within a forty-eight hour period. Edema rapidly diminished, and pain was usually much less and often completely disappeared on the operated side. Hyperhidrosis soon disappeared and sensation appeared to return earlier on the sympathectomized side. We noted, as previously reported, that demarcation of the tissue appeared more rapidly on the side of the sympathectomy, but at this time cannot determine whether that in itself is beneficial. This more rapid demarcation may not indicate more ready healing, but instead, more intense and immediate vascular shunting with more rapid necrosis and mummification of the part distal to the shunt.

SILVER NITRATE

Over the past six years, after the method of Moyer, et al,¹⁶ for burns. 0.5% silver nitrate has been intermittently lavaged over the area of frostbite using a contralateral hand or foot as control whenever the depth of injury appeared to be bilaterally similar. The end result has been comparable to that following the use of other soaks or cleansing agents; the epithelialization is similar whether skin or scar, but there is perhaps

one outstanding effect noted. Pain is less, and infection, even superficial, appears less obvious. The handling of Ag NO₃, staining of bed linen, floors and hospital equipment by the silver nitrate is a mild aggravation making this method of care unpopular with Hospital Administrators and Nursing Supervisors. This problem is somewhat eased by the use of disposable supplies.

SKIN GRAFT PROCEDURES

To hasten healing, skin grafts have been utilized between the third to the twenty-first day and as a reconstructive procedure at any time thereafter. Split thickness skin and Reverdin pinch grafts have been well received during the early stages of healing if the part to which the graft was applied was rapidly thawed. The split thickness and minute grafts have been irregularly successful when applied to extremities spontaneously thawed or thawed by delayed means with ice or snow. After three months or longer, all types of graft appeared effective in the absence of infection, once the denuded areas were well vascularized.

Split thickness skin cover in frostbite often requires intermittent saline soaks to prevent maceration and infection. The procedure of grafting is worth a trial in many cases, often preventing exposure and necrosis of tendons, underlying fascia, and joint and periarticular structures. The skin graft procedure is benign, and can be performed without difficulty under local anesthesia. Care post grafting must be directed to maintaining a clean graft surface, sometimes difficult because of the previous necrotic bed upon which the new graft rests.

HYPOTHERMIA AND DEHYDRATION

Death from general body cooling is not uncommon in the arctic and subarctic. In the past three years we have had the opportunity to see and treat four patients in deep hypothermia. Only one, the last treated, survived. Since that time, twelve patients with varying degrees of deep hypothermia have been treated without loss of life, although preservation of anatomy when hypothermia is accompanied by frostbite, is more difficult than the essentially normothermic patient with freezing injury.

All patients had sustained freezing of the extremities as well as general body cooling. Sudden accidental cooling of the body and depression of the normal core temperature is serious and often fatal. At rectal temperatures below 92° F. homothermic control becomes unstable, and, if cooling persists, may be lost altogether. Coma often develops early and cardiorespiratory failure may occur even above 88°F.

We recommend, in this mixed problem, the same resuscitation techniques which are followed when general hypothermia is used as an adjunct to surgical anesthesia. These techniques include rapid warming with warm packs and blankets, intravenous infusion of glucose and water, and respiratory aids including intubation and oxygen if necessary. The possible need for cardiac defibrillation or tracheostomy should be anticipated. The process of recovery is often complicated by pre-existing anoxia, trauma with excessive blood loss, and alcoholic stupor.

Rapid warming in a water bath at 90° to 100° F. brings the patient quietly to a responsive state, alert and rational. However, the release of accumulated acid end products of metabolism can create a sudden metabolic acidosis with death by ventricular fibrillation in less than two to three hours following rewarming. Following slow spontaneous, or delayed rewarming, death may occur as much as twenty-four to forty-eight hours later.

It is essential that one or more intravenous routes be established in the hypothermic patients to enable electrolyte control with the determination of, at least, pH, pCO₂ and pO₂ and the administration as required of buffering agents such as sodium bicarbonate or THAM. EKG monitoring is indicated in view of the hazard of ventricular fibrillation. In rare instances the patient may be in alkalosis rather than acidosis as a result of gastric suction or vomiting or from the retention of potassium or sodium.

The irrational behaviour previously reported^{1,2} in victims of freezing injury may actually represent post-traumatic phenomena secondary to pre-existing effects of water deprivation and dehydration. This behaviour is particularly likely in the survival victim rescued after days of wilderness exposure, often without food and water.

X-RAY EVALUATION OF EXTREMITIES

The roentgenographic examination of the involved extremity is usually negative when performed in the first ninety days, unless severe infection with osteomyelitis is present or amputation has occurred. Occasionally in the absence of a strenuous program of physiotherapy and digital exercises there may be osteoporosis of the involved digits and tarsi or carpal bones.

Between the third and sixth months, apparently related more to the depth of injury than the method of thawing, there appears fine, irregular lytic areas, generally in the metacarpal or metatarsal phalangeal or proximal or distal interphalangeal joint areas (Fig. A). These punctate lesions are often juxta- or subarticular and

occasionally extend into the joint space, usually a late occurrence. In most of the cases examined these punctate lesions may worsen over one to three years and then many may eventually decrease in size or fill completely. Our experience is similar to that reported by Vincent, *et al*,¹⁴ who found no pattern for this change.

Biopsy of these areas on the few occasions permitted, demonstrated the lesions to consist of dense fibrous connective tissue, suggesting areas of chronic inflammation. Prominent vascular channels are seen on some sections in the indentations that extend into the subarticular tissues. These changes are somewhat similar to the "punched out" lesions of rheumatoid arthritis or gout. The soft tissues are fusiform and obviously swollen. The area most commonly involved in our series is that of the interphalangeal junction, usually the proximal interphalangeal joint, with the lesion most often at or near the articular margins. These X-ray changes are often associated with the apparent loss of the volar fat pads subcutaneous fat the glossy appearance of skin over the digits, fusiform enlargement and contracture of the involved joints.

The changes seen in this group of patients appeared earliest at six weeks in a patient thawed

by rapid rewarming, and latest at eighteen months in a patient likewise rapidly thawed. Possible causes of the lesions are (1) disuse, (2) direct effect of cold, or (3) avascular necrosis as a result of thrombosis of the articular branches of the volar or dorsal digital arteries. Although there is no direct evidence, it is thought that the lesion is an effect of thrombosis or blockage of the articular branch of the digital vessels, with further loss of nutriment to the subarticular cartilage.

TABLE I

Classification of degree of ultimate injury

- A No recorded or demonstrated residual
- B
 - 1) Dysesthesia
 - 2) Intrinsic muscle atrophy
- 3) 3) Skin loss requiring skin grafting
- 4) 4) Volar fat pad (digital) atrophy or loss
- 5) 5) Limitation of joint motion
- 6) 6) Neurovascular sequelae (hyperhidrosis, hypesthesia, hyperesthesia, paresthesia, pain)
- C Amputation, distal phalan any level, any number
- D Mid or proximal phalangeal amputation, any level any number
- E Complete phalangeal loss at metacarpo-phalangeal or metatarso-phalangeal
- F Major amputation of an extremity

TABLE II

Results of varying methods of treatment.
(Figures are percentage of patients in each category and figures in parentheses are numbers of patients)

Category of Injury

	A		B		C		D		E		F		Total Patients
Full frostbite program (rapid thawing, whirlpool, P.T., open care)	9	(4)	87	(40)	0		4*	(2)	0		0		(46)
Program as above except thawing by other than rapid	8	(7)	70	(58)	6	(5)	7	(6)	8	(7)	1	(1)	(84)
Other treatment programs not including P.T., whirlpool, or open care	9	(6)	39	(27)	12	(8)	12	(8)	9	(6)	19	(13)	(68)
Rapid thawing but with other treatment programs	50	(1)	50	(1)	0		0		0		0		(2)
All patients	9	(18)	63	(126)	6.5	(13)	8	(16)	6.5	(13)	7	(14)	(200)

*Case No. 19: 1st case of Rapid Rewarming by H₂O (100°F.) Loss due to premature surgical debridement. Also case No. 77: Loss of 5th finger complete following laceration of left wrist (ulnar arter incised) and laceration left antecubital fossa in suicide attempt prior to freezing episode (as part of suicide attempt).

TABLE III

Results of Standard Frostbite Program Applied to Patients with Injuries Thawed by Rapid,
Slow or Delayed Means or by Excessive Heat
(Data presented as percentage of patients in each category. Figures in
parentheses are number of patients)

Category of Injury

	A		B		C		D		E		F		Total Patients
Rapid thawing in warm bath 100°-115° F.	10	(5)	86	(41)	0		4	(2)	0		0		(48)
Slow thawing, predominantly spontaneous in air at room temperature	9	(12)	61	(81)	8	(11)	6	(8)	5	(7)	10	(13)	(132)
Delayed thawing by ice, snow, or cold water bath	6	(1)	25	(4)	13	(2)	25	(4)	31	(5)	0		(16)
Thawed by excessive heat	0		0		0		50	(2)	25	(1)	25	(1)	(4)
All patients	9	(18)	63	(126)	6.5	(13)	8	(16)	6.5	(13)	7	(14)	(200)

TABLE IV

Results of Mixed Insult Including
Refreezing and Thawing with Excessive Heat.
(Figures indicate numbers of patients)

Category of Injury

	A	B	C	D	E	F	Total
Refreeze (freeze-thaw-freeze, thaw by any means)	0	0	0	2	2	0	4
Immersion injury followed by freeze, thaw by any means	0	1*	0	0	1	7***	9
Fracture plus freeze	0	5***	0	0	0	3	8
Thaw by excessive heat (above 120° F.)	0	0	0	2	1	1	4
TOTAL	0	6	0	4	4	11	25

* Age 12, spontaneous thaw.

** Includes one patient, diagnosis diastasis tibia, fibula (distal), thawed spontaneously; one patient diagnosis metacarpal fracture, thawed spontaneously; two patients fracture of tibia, rapidly thawed; one fracture ulna, undisplaced, thawed spontaneously.

*** Exposure in all cases 5-7 days minimum.

TABLE V

Result Related to the Presence or Absence of Infection

	A		B		C		D		E		F		Total
None	16	(11)	81	(57)	3	(2)	0		0		0		(70)
Superficial Infection	7	(7)	68	(68)	7	(7)	10	(10)	6	(6)	2	(2)	(100)
Deep Infection	0		3	(1)	13	(4)	20	(6)	23	(7)	40	(12)	(30)
TOTAL	9	(18)	63	(126)	65	(13)	8	(16)	65	(13)	7	(14)	(200)

DISCUSSION

Evaluation of the effectiveness of rapid thawing or any other therapeutic procedure is hampered by the absence of diagnostic criteria of the severity of the initial injury. Initially in this study it was attempted to estimate the degree of injury on admission of the patient, but even when the estimate was limited to only two classifications, superficial or deep, twenty-one of the first fifty-one cases were found to have been erroneously classified when viewed in retrospect. Furthermore, it was found that early classification had no clinical usefulness since there was no evidence that any variety in treatment would be indicated on the basis of an estimate of the severity of injury.

Because of the absence of initial quantitative diagnosis, this data is presented solely on the basis of ultimate outcome. This is most unsatisfactory because of unique circumstances in individual cases. In Table II, for example, cases in D and E categories receiving routine treatment, but not rapidly rewarmed, were almost all thawed by either excessive heat, ice and snow, or suffered a freeze, thaw, refreeze injury, events known to aggravate the cold injury. Half of the cases receiving major amputation after "other" treatment suffered shipwreck and exposure to cold water immersion for several days with superimposed freezing. Although our cases are certainly random, wide variation in circumstances and depth of injury makes even the attempt to evaluate treatment on the basis of final outcome most uncertain despite the relatively large number of cases reported.

Regardless of the difficulties in interpreting the statistical data, there is a definite clinical impression of the superiority of rapid thawing. Extremities rapidly thawed show flushing to the distal tufts of digits and the rapid appearance of normal pink color. Sensation to pin-prick is always present after rapid thawing until separation of blebs begins. Sensation was never found following other modes of thawing save in the most superficial injuries which do not go on to bleb formation. After rapid thawing blebs appear in one to eight hours. They are larger and more distal than after other thawing methods and are filled with clear serous fluid, never bloody. Bleb appearance may be delayed for two or three days after spontaneous thawing, seven or eight days after ice and snow thawing. These latter thawing methods produce smaller blebs which are often sero-sanguinous or black in color.

The hospital course appears smoother and shorter for the rapidly thawed extremities. Patients generally can be discharged in six weeks or less. Rapidly thawed extremities dry sooner, have less superficial infection, and few complications.

Recently, emboldened by past success, we have discharged our patients after bleb rupture and eschar formation, to be followed at home. This early discharge to home care may be from third to twenty-first day, depending upon the severity of the cold insult. There the "clean" hospital regimen is employed during the Jacuzzi home whirlpool, or an oscillating washing machine, even available gas operated in remote areas. There was an attempt, in analyzing this series, to correlate hospital days with thawing and treatment methods but we found this impractical because of the intrusion of other factors. An early amputation, for example, results in a shorter hospitalization than a protracted effort to save the maximum tissue. Indigents with no home care convalesce in the hospital and patients in the Public Health Service Hospitals serving the Alaska native population may stay longer than those in private facilities. Discharge was often delayed pending the availability of transportation to distant or inaccessible homes.

It is felt that there is little question regarding the total destruction produced by freezing, thawing, and refreezing. These tissues become black, dry and shriveled or liquefy completely within seven to nine days with no evidence of viability at any time. Slightly less rapid development of gangrene is also seen in severe injury following ice and snow thawing or with concomittant fracture which interferes with circulation in the extremity. The superposition of a burn over cold injury from the use of uncontrolled dry or wet heat for thawing is self-evidently destructive.

In our Alaskan experience, poor prognostic signs during early treatment include the late appearance of small, dark colored blebs; the failure of blebs to extend down to the tips of the volar pads of the digits; cold cyanotic distal parts and, of course, obvious mummification. Good prognostic signs after thawing; include sensation to pin-prick, good color, warm tissues, large clear blebs appearing early and extending to the tips of the digits.

Based on comparisons of the results obtained with random cases, it is felt that the clean conservative routine herein described has produced substantially less tissue loss and functional disability than the various procedures previously used. In particular, the absence of amputations higher than the metacarpal or matatarsal-phalangeal joint in any patients receiving this routine treatment compares favorably with the periodic mid-foot, below and above knee amputations previously seen throughout Alaska. The clinical impression is that substantial benefit is incurred by rapid thawing. This method will be continued as a recommendation for treatment, wherever

extremities are seen prior to thawing. It is anticipated that the collection of increasing numbers of cases treated by rapid thawing will provide a stronger statistical base from which to draw more positive conclusions in the future.

SUMMARY

1. Two hundred cases of frostbite have been treated according to a standard hospital routine consisting of open, sterile care, twice daily whirlpool bath, intensive active physiotherapy, and postponement of surgical intervention. Twenty-one patients, or 10.5% lost phalanges or portions of phalanges. There was one major amputation. Seventy additional cases with frostbitten extremities received other forms of treatment. Of these, thirty-five, or 50%, lost tissue. Thirteen patients, or 18.57%, had major amputations.
2. Of the cases treated, forty-eight were seen prior to thawing and were rewarmed in water at above body temperature. Two extremities lost a digit and one the tuft of the distal phalanx. Although the number of cases is insufficient to permit positive conclusions, the clinical results following rapid thawing appear to be superior to those following other means of thawing.
3. The follow period of this report ranges from eighteen (18) to five (5) years.



FIG. A

Xray of digits, severe freezing, three years previously. Thawing was by rapid rewarming in warm water. On this section of film is the fusiform enlargement of the pip joints and the sub and intra articular lytic areas.

CASE HISTORIES

The following case histories are illustrative of the sequence of events that may be anticipated in typical severe frostbite treated by this standard routine.

CASE NO. 187, EXCESSIVE HEAT

This seventy year old fisherman, hardy, and inured to Alaskan weather and winters, was exposed for four or five hours, winds fifteen knots, temperature -17°F. , lost on a trail. He eventually was forced to crawl on hands and knees and was discovered by a nearby cabin dweller alerted by a barking dog. The patient was brought into a warm area, hands and arms were described as being in the full fist position, hard, frozen, white, and similar to two clubs. They were without sensation or motion. Thawing was begun with snow and ice water, and when this failed to rapidly thaw the part, the well-meaning first aid was applied by pouring scalding water over the frozen extremities until thawing occurred. The result was burn over previously frozen parts. (Fig. 1 - 4).

CASE NO. 91: REFREEZE (Fig. 5 - 8).

This adult mountain climber, age thirty-one, sustained injury over a period of several days at temperatures from -18°F. to -35°F. , wind fifteen to twenty knots, altitude approximately 17,000 to 18,200 feet. While attempting direct ascent to the summit at about the 18,000 foot level, boots in place twelve hours, he noted loss of sensation and eventually upon returning to his tent found his toes white, immobile, with the resolution of what appeared to be at least superficial freezing injury following massage and warming of extremities by the accepted mountaineers method of using heat from his companion. Another attempt was made several days later, this time successfully, the summit at 20,300 feet was attained, during which he had complete loss of sensation. Upon reaching the 17,000 foot level and again thawing the extremities, it was noted that there was no evidence of pain, but a gravelly sensation in the heel and the development of small dark serosanguinous blebs distal to the metatarsal phalangeal junctions. Temperatures on the second attempt had been in the range of -30°F. , wind at forty knots. On the second descent, after the second freezing insult, obvious demarcation had been identified at the mid-arch.

Eventually the climber descended to the 14,000 foot level, and there was met by rescue aircraft. He was admitted to an Anchorage Hospital, and placed on the standard frostbite

program during which he suffered rapid destruction of tissue commonly seen following this type of injury.

CASE NO. 4: SPONTANEOUS THAWING

This patient, a seventy-five year old fisherman and trapper, was injured when out at extremely low temperatures, moderate wind, deep snow. Exposure time may have been as long as twelve to fourteen hours, the entire episode complicated by alcoholic excess. He crawled through deep snow drifts, eventually reached his own cabin where his badly frozen extremities thawed spontaneously. Following admission to a regional hospital, he was placed on a standard regime as described in this article. His case history is representative of the severe changes following spontaneous thawing, other patients with spontaneous thawing having had minimal or no loss. As with delayed thawing, the results of spontaneous thawing are unpredictable. When examined his radial pulse was adequate. His hospital course after three weeks resulted in demarcation at the mid-proximal phalangeal area, complete demarcation developing at approximately six weeks.

CASE NO. 78: RAPID THAWING

This fourteen year old boy went hunting, walking twelve miles during his trip. The ambient temperature was -20°F., with little wind. He was wearing borrowed tight leather boots, covered with overshoes. One hour after leaving home his feet were noticeably cold and painful. Three hours later sensation was absent completely, the feet painless, and he continued hunting without pain, and therefore more comfortable. Six hours later he arrived home, overshoes filled with snow, and frozen to the boots. Foot gear was removed with difficulty, exposing cold, rigid, pale, yellow-white discolored feet, "solid to the ankle". He was taken to the nearest hospital. Examination there demonstrating an anesthetic foot, digits still in the "frozen" state, with collapse and compression of the volar pads. Forty-five minutes had elapsed since removal of the shoes and by this time a purple-red line of discoloration had developed at the line of demarcation between rigid and softer proximal tissues. The area involved was without sensation or motion.

The feet were thawed in water, temperature 110°F. until flushing of the distal pads was evident. The resulting "burgundy wine" hue of the distal foot persisted until the gradual development of blebs. His course was satisfactory, (Fig. 17) and he was discharged from the hospital for home care three weeks after injury. This represents a rapid hospital course for what was probably a severe

injury, in our opinion, possibly only with rapid rewarming techniques.

CASE NO. 135:

FREEZING INJURY AND EARLY SYMPATHECTOMY

Brought down after Helicopter engine failure in mid-winter on the Arctic Coast, this pilot walked out for help. He traveled for five hours, wearing felt 'bunny' boots, and lost sensation in his feet at the end of that time. Wind approximately 10 knots, temperature -30° F. He continued walking for another 7 hours and was finally rescued by another aircraft. He had minimal thawing by engine heat and was still demonstrating frozen tissues in the distal foot upon arrival at the Pt. Barrow Hospital. There he was thawed in a warm tub, 108° F., and within a few hours developed return of sensation and large distal blebs. His treatment was the regimen described in this paper, with the added procedure of lumbar sympathectomy on the left.

CASE NO. 7:

DELAYED THAWING BY ICE AND SNOW

This case represents a very popular method of thawing the frozen extremity all over the world in the frigid zones — that of immersion of the limb in ice water or a snow bath. This is popular presumable because the thawing is quite painless. The patient, a 54-year-old Eskimo, a trapper and hunter, was on the trail when a blizzard struck. His dog-team ran off, leaving him without food, water, or shelter, with the ambient temperatures between -50° F. and -20° F. He walked for six days, with no problem in his animal skin 'mukluk' footgear until the latter part of the second day, when he lost sensation in his toes. His feet were "frozen solid" by the third day. He walked into the Arctic village of Black River on the evening of the sixth day, having hiked an average of twenty to thirty miles daily, with only snow as oral fluid intake. His feet were frozen for three to four days, according to history and he left them so without attempting to thaw the extremities in order to maintain them in the solid state for walking and to survive. Upon reaching the village, his feet were immersed in snow and ice water, and thawed by delay over a period of eight hours.

CASE NO. 45:

EXTREMITY FRACTURE FOLLOWED BY FREEZING AND SPONTANEOUS THAWING

This patient was on a caribou hunt in the Northwest coast area of Alaska when his small plane collided with a mountain at the 5,000 foot

level. He sustained a fracture of the tibia, a fracture of the talus and was unconscious. His companion, equally severely injured, including a fracture of his lumbar spine, crawled 13 hours down to a settlement and eventually arrived at an Alaska Native Hospital. His thawing was in transport and was spontaneous. Temperatures in the area of the accident were well below zero and the winds were between 25 and 30 knots.

BIBLIOGRAPHY

1. Meryman, H. T. *Tissue Freezing and Local Cold Injury* Physio. Rev. 37, 233-251, 1957
2. Quintanella, R. F., Krusen, H., and Essex, H. E. *Studies on Frostbite with Special Reference to Treatment and the Effect on Minute Blood Vessels* Am. Jn. Physiol. 149;149, 1947
3. Lange, K., Boyd, L., and Loewe, L. *Functional Pathology of Frostbite and Prevention of Gangrene in Experimental Animals and Humans* Science 102:151, 1945
4. Mundth, E. D. "Proceedings, Frostbite Symposium" — E. Viereck, Ed. Arctic Aero. Med. Laboratory, Ft. Wainwright, Alaska, Feb. 1964
5. Lange, K., and Boyd, L. J. *The Functional Pathology of Experimental Frostbite and Prevention of Subsequent Gangrene.* Surg., Gynec., and Obst. 80: 346-350, 1945.
6. Fuhrman, F. A., and Crismon, J. M. *Studies of Gangrene Following Cold Injury* Jn. Clin. Invest. 26:476, Mar. 1947
7. Finneran, J. C., and Shumacker, H. B., Jr. *Studies in Experimental Frostbite* Yale Jn. Biol. and Med. 21:322, 1949
8. Hardenburgh, E., and Dawson, D. Research Report NM 41 02 00.01.01 *Effect of Rapid Rewarming and Time and Temperature of Exposure on Tissue Survival in Frozen Rabbits' Feet* Nav. Med. Res. Inst., Bethesda, Md. 1957
9. Golding, M. R., deJong, P. N., Hennigar, G. R., and Wesolowski, J. N. *Protection from Early and Late Sequelae of Frostbite in Regional Sympathectomy Surgery*: 303, 1963
10. King, R. D., Kaiser, G. C., Lempke, R. E., and Shumacker, H. B., Jr. *Evaluation of Lumbar Sympathetic Denervation* Arch. Surg. 88:36, 1964
11. Campbell, M. R. "Proceedings, Frostbite Symposium" Arctic Aero. Med. Lab. Ft. Wainwright, Alaska, Feb. 1964
12. Mills, W. J., Whaley, R., and Fish, W. *Experience with Rapid Rewarming and Ultrasonic Therapy* Alaska Medicine, 2:1. 1960; 2:114, 1960; 3:28, 1961
13. Washburn, B. *Frostbite* N. E. Jn. Med. 266:974, 1962
14. Vincent, H. A., Schatzki, R., Orr, K. D. *Army Medical Research Lab, Ft. Knox, Ky. Report No. 108, Jan. 1953*
15. Isaacson, N. H., Harrell, J. B. *The Role of Sympathectomy in the Treatment of Frostbite Surgery* 33:6, June 1965
16. Moyer, C. A., Margraf, W., Monafio, W. *Treatment of Large Human Burns with 0.5% AgNO₃ Solution* Arch. Surg., Vol. 90, June 1965
17. Roy, J. *Clinical study of Frostbite* U.S.A.F. Office of Command Surgeon, Jan. 1964
18. Hagglund, Paul Fairbanks, Alaska — Personal Communication
19. Cutting, R. *Frostbite Symposium* U. S. Army, Alaska, 1963, Feb.
20. *Current Therapy Cold, Disturbances Due To* W. B. Saunders and Co. 1964, 1965, 1966, 1968.

APPENDIX

WIND CHILL - AND COOLING

In 1945, Dr. Paul A. Siple¹, famed for his physiological observations in the Antarctic and a member of the Antarctic Byrd Expeditions, published his paper on *Measurements of Dry Atmospheric Cooling in Subfreezing Temperatures* in the Proceedings of the American Philosophical Society. From his original formula that took into account the combined cooling effects of temperature and wind speed, there has developed a wind chill chart so familiar to many of us. The chart published here has been produced by the Alaskan Command, U.S. Air Force, and is reproduced with their permission. This chart, and others like it, establish within fairly accurate bounds, the ambient unmoving air temperature that would be required in order to produce the same effect on exposed flesh, that a particular wind and temperature combination might produce.

Almost all Alaskans know that the increased velocity of wind may cause increased danger of skin freezing. Many assume that this increase in wind velocity causes the ambient air temperature to fall lower as the wind velocity rises. This is untrue. What does occur, is the phenomenon of air

movement, so that warm or warmed air is moved away from the individual exposed to the wind, causing first local then general body cooling. Any resultant decrease of skin temperature is due to heat loss, insidious or sudden, causing local vasoconstriction, vascular shunting and cellular changes until eventually ice forms in the tissues, with true tissue freezing or frostbite. This phenomenon can be readily proved. Merely place a laboratory recording thermometer with a thermistor attached (or any outdoor thermometer), out your car window, at temperatures in the neighborhood of 0° to -20° F., just a nice winter day in Anchorage, Alaska. Let it sit for a few minutes until the temperature reading has stabilized. This temperature, as read, will remain at the ambient air temperature level, such as -20° F. Now slowly accelerate your vehicle to 60 miles per hour; the temperature remains unchanged still at -20° F. Now attach the thermistor to a bared hand. Place your ungloved hand out the same car window in the same ambient temperatures, in this case we have chosen -20° F. at 0 miles per hour, the skin temperature may be

read from the resting state at approximately 93° F. or in that neighborhood, (normal skin temperature in the non-smoker) and it will slowly drop as heat is lost to the exterior, falling sometimes as low as 85° to 80° F. very rapidly. As the car is accelerated and the protective air layer is moved away, the thermistor records continued skin heat loss or skin temperature fall; if this is continued skin temperature may drop to a level near 23° F., the temperature level where freezing of skin may actually occur.

Cooling then, by one definition, may be described as loss of heat. Freezing is such total heat loss that ice forms in the exposed tissues.

This effect of the cooling power of the atmosphere (by wind) is primarily heat transfer by convection — in human cases, by exposure of uncovered flesh to the environment. Wind therefore has an important effect on body temperature by its influence on air cover and air movement over the exposed skin. Even small amounts of air movement have considerable chilling effect because this movement disrupts or removes the thin layer of warmed air that builds up near and about the body. This air movement leads to loss of total heat, since heat is transferred from the core of the body to rewarm the new colder air, replacing that blown away. Therefore, wind chill leads not only to frostbite locally, but may contribute to general hypothermia. Wind also has not only a chilling effect, but robs any insulation of its effectiveness if the insulation becomes wet, by combining heat loss of convection with that of loss due to conduction.

Heat is transferred (or lost) only when there is a temperature gradient; the smaller the difference between the bodies measured, the less the loss. Avoidance of heat loss to wind (air movement) is best by insulation, the secret being that the insulating layer keeps the outer face at the environmental temperature, and the inner face of the insulating area, that at the skin surface, at normal skin temperature, so that there is little loss or transfer of heat, between the two surfaces. The insulator serves to keep heat from escaping from the body to the cold environment. This insulator is the same in either case, namely air.

Warm air that is in small compartments, not moved rapidly about, weighs very little. This is the advantage of fishnet underclothing; a layer of air is trapped and cannot be dissipated by wind or air movement. In insulation then, it is the thickness of the insulator, not the weight, that is important. One is able to make up for the loss of heavy, tightly woven material, by the addition of a light, thin, outer wind proof shell. This further maintains the effectiveness of the layered principle and the utilization of light trapped air.

Wind chill may occur not only from natural wind, but also with air movement generated by automobile, snowmobile, aircraft or helicopter rotoblade. These vehicles generating their own air movement (or wind) may predispose to frostbite or general hypothermia in those poorly covered.

The basic problem then is that of heat loss or its prevention. Each individual has his own private inner climate² that floats about in the general outer climate of the natural elements. This inner climate is protected by an insulating shelter, out of wind, or clothing, and the thin layer of air. The metabolic furnace of the individual is fueled by calories; some of these calories are stored, and some are used as fuel to keep the inner climate temperature at near 98.6° F. Realizing this, and realizing that skin freezes at approximately 20° to 24° F. or -5° to -6° C., if you can avoid those temperature levels, your tissues cannot freeze. Realizing that heat is transferred from a warm to a cold environment, and that if your body is losing heat, it must be to a colder exterior region, then if you have a sensation of being cold or cooling, when previously you were warm, you must have a leak in the protective physiological system. Your inner climate needs adjusting or your furnace is in need of repair. By redeveloping your protective air cover, replenishing your caloric reserve, with the addition of water, you may stabilize your own inner climate. And if you know all of this, or more, you will no longer fear the outdoors in winter, wind or not.



Gone with the wind

REFERENCES

1. Siple, P.A. and Passel, C.F.: MEASUREMENTS OF DRY ATMOSPHERIC COOLING IN SUB-FREEZING TEMPERATURES *Proc. Amer. Phil. Soc.*; 89: 177-199, 1945.
2. Mills, W.J. *Encyclopedia Britannica* (In Publication).

WIND SPEED		COOLING POWER OF WIND EXPRESSED AS "EQUIVALENT CHILL TEMPERATURE"																						
KNOTS	MPH	TEMPERATURE (°F)																						
CALM	CALM	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60		
		EQUIVALENT CHILL TEMPERATURE																						
3 - 6	5	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-70		
7 - 10	10	30	20	15	10	5	0	-10	-15	-20	-25	-35	-40	-45	-50	-60	-65	-70	-75	-80	-90	-95		
11 - 15	15	25	15	10	0	-5	-10	-20	-25	-30	-40	-45	-50	-60	-65	-70	-80	-85	-90	-100	-105	-110		
16 - 19	20	20	10	5	0	-10	-15	-25	-30	-35	-45	-50	-60	-65	-75	-80	-85	-95	-100	-110	-115	-120		
20-23	25	15	10	0	-5	-15	-20	-30	-35	-45	-50	-60	-65	-75	-80	-90	-95	-105	-110	-120	-125	-135		
24-28	30	10	5	0	-10	-20	-25	-30	-40	-50	-55	-65	-70	-80	-85	-95	-100	-110	-115	-125	-130	-140		
29-32	35	10	5	-5	-10	-20	-30	-35	-40	-50	-60	-65	-75	-80	-90	-100	-105	-115	-120	-130	-135	-145		
33-36	40	10	0	-5	-15	-20	-30	-35	-45	-55	-60	-70	-75	-85	-95	-100	-110	-115	-125	-130	-140	-150		
WINDS ABOVE 40 HAVE LITTLE ADDITIONAL EFFECT		LITTLE DANGER					INCREASING DANGER (Flesh may freeze within 1 minute)							GREAT DANGER (Flesh may freeze within 30 secs)										
DANGER OF FREEZING EXPOSED FLESH FOR PROPERLY CLOTHED PERSONS																								



CASE No. 187
THAWING BY EXCESSIVE HEAT



Fig. 1:
The extremity less than twenty-four hours after injury revealing the cyanotic, quite painful, and foul smelling hands, primarily lacking blebs, revealing the dusky changes of excessive heat applied to freezing injury. The patient, because of the severity of injury, had been brought to the operating room where controlled sympathectomy was performed.



Fig. 2:
The tenth day following injury, revealing the unrelenting tissue demarcation and necrosis, with routine treatment still in effect, infection controlled by whirlpool and open treatment.



Fig. 3:
At three weeks the digits are hard, rigid, soft tissue is completely mummified, absolute tissue death demonstrated. Again, there is evidence of infection, superficial only, at the area of tissue demarcation and amputation.



Fig. 4:
Spontaneous amputation, bilateral, at the MP junction, at six weeks. The pattern is demonstrative of the hopelessness for recovery following the onslaught of gangrene when frozen tissues are cooked by excessive dry or wet heat.

DEMONSTRATION OF REFREEZE
(FREEZE-THAW-FREEZE-THAW SYNDROME)



Fig. 5:
Forty-eight hours post-thawing, in whirlpool bath. The distal areas and toes are dark, cyanotic, and demonstrate small proximal serosanguinous blebs. Pain quite marked at the demarcation line.



Fig. 6:
Five days following thawing, the foot wet, edematous and insensitive; the forefoot markedly necrotic, demonstrating rapid demarcation and separation between injured and viable tissues.



Fig. 7:
Seven days post-thawing, revealing rapid liquefaction necrosis of forefoot, separation of tissues with dissolution and liquefaction of ligaments, vessels, nerves, tendon and structures about the joint, the osseous structures held in place only by a skin envelope.



Fig. 8:
This view, twelve days following thawing, demonstrates the irreversible tissue destruction common to freezing injury preceded by long immersion injury, or by thawing after a previous freezing. This appears to be a typical freeze-thaw=freeze-thaw pattern found frequently in mountaineers.

SPONTANEOUS THAWING



Fig. 9-10:

Demarcation with obvious complete necrosis and spontaneous amputation is seen at six weeks. Demarcation was equal bilaterally, infection



superficial and minimal, silver nitrate lavage for comparison as a possible adjunct in controlling infection was utilized on the right.



Fig. 11-12

At three and a half months, he has adequate functional result for gross purpose, but poor anatomical result. Gross motion is permitted, the patient can feed and clothe himself, although with some difficulty, and has been discharged. He has, throughout the course, maintained an adequate and



rigid program of physiotherapy. At the end of the treatment there appeared to be no significant benefit from silver nitrate soaks as compared to the open granulating method, except that infection, if present, is more readily controlled utilizing 0.5% AgNO₃ solution.

RAPID THAWING IN WARM WATER (110° F.)



Fig. 17:
A cold rigid forefoot without sensation or digital motion. Tissue compression and sock marks are obvious. Treatment was whirlpool bath and thawing at 110° F. for approximately twenty minutes.



Fig. 18:
Thawing was followed with an ominous burgundy hue. This has since been demonstrated in other cases, more often at temperatures greater than 110° F. The cyanosis remained for approximately six hours at which time small discrete blebs began to appear. Gross sensation was present after thawing and remained so until bleb development.



Fig. 19:
Over the next forty-eight hours large clear blebs developed ultimately extending to the digital tips. Failure of distal bleb formation, in the presence of proximal blebs, is an ominous prognostic sign.



Fig. 20:
Four months post-injury, the anatomy has been preserved, but the changes of deep injury are obvious, and include volar fat pad loss, subcutaneous fat loss, early IP joint contracture, nail changes, hypesthesia and hyperhidrosis. Epithelialization is complete. At the end of one year the extremity had adequate sensation, there was mild subcutaneous loss and interphalangeal contracture, with a few interphalangeal subarticular lesions present on X-ray examination. Increased sweating was present.

FREEZING INJURY AND EARLY SYMPATHECTOMY



Fig. 24:
Bilateral equal injury, 36 hours post-thawing by rapid rewarming in warm water. Patient complained of severe pain, bilateral, and agreed to a control sympathectomy on the left.



Fig. 25:
Nine days post-lumbar sympathectomy. Note absence of superficial infection as compared to the right, or control, side. Tissues are dry and there is marked diminution of edema on the left. Pain is absent on the left, present on the right.



Fig. 26:
There is continued loss of edema and pain on the left, but some early demarcation of the tips of toes 2 and 3. Anhydrosis on the left as compared to hyperhydrosis on the right.



Fig. 27:
Here, same data as Fig. No. 26, but appearance of a similar injury is much different. There is still some superficial infection (*Pseudomonas*); continued edema, and pain. At the sixth post injury week, both feet were similar in appearance except that there had been greater tissue loss on the left (part of volar tips 2 and 3).

CASE NO. 7
DELAYED THAWING BY ICE AND SNOW



Fig. 13:
The feet are approximately five days post-freezing and forty-eight hours post thawing. Here a very poor prognostic sign is evident. The blebs are all proximal, and are dark. The toes and distal tissues are without blebs or blistering, and are dusky, edematous, painless and insensitive. Phalangeal amputation is generally unavoidable with this pattern and may be anticipated from the date of admission — as early as twenty-four hours post-thaw.



Fig. 14:
The plantar aspect of the foot at the same period as Fig. 13 — the blebs are proximal and the plantar aspect of the foot without sensation. The pedal pulses are diminished but present.



Fig. 15:
Three months post-thawing, with the superficial infection at the junction of viable and gangrenous tissues held in control by whirlpool baths and aseptic care permitting the self-demarcation of the tissues, so that maximum length of foot is gained. Amputation is considered from this point on, once the tissue edema has subsided and there is no further tissue retraction.



Fig. 16:
Amputation at the distal metatarsal Level—the patient was back in the Arctic the following winter and has been a trapper and hunter there for the past six years.

EXTREMITY FRACTURE FOLLOWED BY FREEZING
AND SPONTANEOUS THAWING



Fig. 21:

Here the extremity demonstrates the cyanotic hue of the ischemic limb demonstrating vascular insufficiency. The pedal pulses are absent and the sensation is absent to the level of the malleoli. There are no blebs, proximal or distal, at this stage. This is a typical picture of extremity fracture or dislocation, thawed by other than rapid rewarming.



Fig. 22:

On the fourteenth day there was only minimal bleb formation and these dark and serosanguinous. The foot was without sensation and the digits were obviously gangrenous.



Fig. 23:

At the end of the third week after thawing, there was dry gangrenous change of most of the foot and the plantar pad. Tissue necrosis continued and the extremity was amputated at the level of the fracture.

ACCIDENTAL HYPOTHERMIA

PART II:

Clinical Implications of Experimental Studies

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The opinions and assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Department of Defense or the Department of the Army.

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Accidental hypothermia is a well recognized clinical condition with an extremely high mortality rate (1, 2). Geography does not confine the occurrence of the problem to northern latitudes, as demonstrated by reports from Africa (3), Texas (4), and Kentucky (5); however, it is generally accepted that the incidence of accidental hypothermia and low ambient temperatures are directly related. This would suggest that an increased awareness of the problem in cold regions is appropriate.

Although very insidious in onset (6) and easily overlooked or confused with other medical problems (7), a high index of suspicion in patients with a history of cold exposure allows a rapid diagnosis. A core temperature by rectal measurement below 94-95°F (recorded with a thermometer capable of registering low readings) combined with electrical activity of the heart by electrocardiogram establishes the diagnosis. Time consuming, complicated or expensive, confirmatory laboratory tests are not usually required.

In view of the high mortality generally associated with accidental hypothermia, a review of the available literature from 1951-1972 was undertaken to evaluate the efficacy of currently employed therapy. English language articles describing adult patients were used provided minimal information was included, i.e., initial temperature, type of treatment used, and results of therapy. Personal communication with authors was used to obtain additional information when appropriate. Hypothermia was considered as "accidental" if the reduction in body temperature had occurred in an uncontrolled fashion, and if any associated disease process leading to increased

susceptibility did not require aggressive therapy during resuscitation to achieve and maintain normothermic status. On this basis, cases of hypothermia secondary to sepsis were omitted, whereas cases associated with hypothyroidism or diabetes were included. Cases eventuating in death were classified using the following guidelines:

1. A delayed death was considered secondary to hypothermia if a common complication existed such as pneumonia, renal failure, or pancreatitis.

2. For this review, a case was classified as a "survivor" if death ensued greater than 48 hours after resuscitation and was not associated with other disease processes usually considered to be a common complication of accidental hypothermia.

3. If death was attributable to major disease processes (such as cerebrovascular accident, traumatic intracranial hemorrhage, or myocardial infarction) possibly antedating the development of hypothermia, the case was completely excluded to avoid bias.

4. If classification was not clear within these guidelines, the case was omitted from further consideration.

Two hundred and one cases of accidental hypothermia were identified which satisfied these criteria (Table I) (3, 4, 8-74). All cases represented patients in whom the diagnosis had been firmly established and treatment administered. The overall mortality rate of 48.8% clearly illustrates the serious therapeutic challenge which accidental hypothermia has presented over the past 20 years.

TABLE I
CLINICAL CASE REPORTS
ACCIDENTAL HYPOTHERMIA
1951-1972

Total Number	201
Survived	103 (51.2%)
Died	98 (48.8%)

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The direction in which new therapeutic inroads should be sought is very difficult to identify, yet more effective treatment is obviously needed. The fact that drug or alcohol intoxication, pneumonia, pancreatitis, renal failure, fluid and electrolyte imbalance, trauma, cold injury, uncontrolled diabetes, or other endocrinopathies are frequently associated with accidental hypothermia complicates the formulation of any standard approach to therapy. In addition, the ever-present threat of fatal cardiac arrhythmias makes accidental hypothermia a medical emergency demanding immediate concern when the diagnosis is made. There is one facet of treatment, however, which does allow more specific evaluation — resuscitative rewarming.

The means by which rewarming may be accomplished are generally divided into two broad categories: external or surface methods and internal or core methods. External or surface rewarming results in the body surface or shell being warmed in advance of the core, and may be accomplished actively (by the use of warm water immersion, heating blankets, hot water bottle, or heat cradles) or passively (warm room with or without blanket cover for patient, no active heat applied). External rewarming by active or passive means has been the most widely advocated (47, 53, 58, 75, 76, 77, 78). In contrast to external rewarming, internal rewarming refers to warming the core in advance of the shell. Only isolated reports have appeared in the clinical literature using this method (44, 45, 46, 48, 72, 73, 74). However, internal rewarming has been advocated by others on a theoretical basis (4, 59, 79, 80, 81).

The 201 clinical cases which had been identified were further dissected with regard to method of rewarming and survival (Table II). Obviously many other influencing factors of possible significance were not controlled by this analysis. However, several generalizations may be valid. The vast majority of patients in this review were rewarmed by external means (194 of 201). With mild hypothermia (94-90°F core

temperature, the method of rewarming used does not appear to be as important as with moderate or severe hypothermia in that at least 75% survived in every group represented (external passive, external active, and internal hematogenous). In patients rewarmed by external means, mortality increased as body temperature decreased (25.8% mortality with mild hypothermia, 51.6% mortality with moderate hypothermia, and 65.9% with severe), which is consistent with findings of the 1966 Committee on Accidental Hypothermia of the Royal College of Physicians in London (2). Another trend regarding external rewarming was that the mortality rate for external passive rewarming was lower than with external active (54 of 121 or 44.6% as opposed to 44 of 73 or 60.3% respectively).

The most interesting observation related to method of rewarming and mortality was that all patients rewarmed by internal means survived. Although the number of patients rewarmed internally was small compared to external methods, the striking difference in mortality may be the most significant point of information to be drawn from past clinical experience.

In view of the frequently associated complications that might influence mortality in accidental hypothermia, a controlled experimental comparison of external as opposed to internal rewarming would be required to identify the most beneficial method. No experimental work was available which addressed this problem until Patton and Doolittle reported a randomized experimental study on hypothermic dogs comparing the cardiovascular response to a standard surface method of rewarming (using a warming blanket) versus internal rewarming as accomplished by peritoneal dialysis (82). Cardiovascular parameters were chosen for critical experimental comparison in view of the profound depressive effect of hypothermia on cardiovascular function (83, 84). Significantly greater improvement in cardiovascular parameters was demonstrated to occur in the internally rewarmed dogs when compared to the

TABLE II
SURVIVAL ANALYSIS BY METHOD OF REWARMING

		External				Internal				Body Cavity			
		Passive		Active		Inhalant		Lavage		Hematogenous			
	Temperature	Died	Survived	Died	Survived	Died	Survived	Died	Survived	Died	Survived	Died	Survived
Mild	94-90°F	4	15	4	8	0	0	0	0	0	1		
Moderate	89-80°F	38	43	25	16	0	1	0	0	0	0		
Severe	-79°F	12	9	15	5	0	0	0	2	0	3		
Total		54	67	44	29	0	1	0	2	0	4		

surface rewarmed dogs (82). Further experimental animal studies evaluating the cardiovascular response to more rapid core rewarming by arteriovenous shunt demonstrated a parallel relationship between improvement in cardiovascular function and return of core

The advantages of internal or core rewarming as compared to surface methods have been elaborated in recent reports (82, 85). These include the rapidity with which normothermia can be achieved, the more rapid return of cardiac output toward normal levels, the more rapid return to normal of the electrocardiogram, and the avoidance of "rewarming shock" or further drop in core temperature during early rewarming. An additional advantage of the use of peritoneal dialysis as a means of internal rewarming is the potential for simultaneously managing renal insufficiency as well as certain drug intoxications which present all too frequently in association with accidental hypothermia.

Internal rewarming has been criticized on the basis of the limited availability of the necessary equipment as well as the time delay attendant with assembling the medical-surgical teams necessary to operate complex and expensive equipment (47, 71). Peritoneal dialysis represents a practical, inexpensive therapeutic modality that is widely available, requires minimal specialized training, and can be utilized in almost any medical facility. Although the use of an arteriovenous shunt for hematogenous rewarming requires the availability of a surgeon familiar with vascular surgical techniques, elaborate or expensive equipment is not necessary. Either method of internal rewarming can be used rapidly with no more previous preparation and planning than is required for other medical emergencies of similar severity.

The successful management of accidental hypothermia cannot be simplified to relate only to the choice of the rewarming technique used. Appropriate supportive measures will undoubtedly contribute to improved survival (86). Particular attention should be directed toward ventilatory support, monitoring of vital signs and electrocardiogram, monitoring and correction of arterial blood gases (corrected to patient's temperature (87, 88), as well as close attention to urine output and blood chemistries (86, 89). Review of the available clinical experience over the past two decades combined with experimental evidence strongly recommends, however, that more consideration be given to the use of internal methods of resuscitative rewarming.

BIBLIOGRAPHY

- Gregory, R.T. Accidental Hypothermia: Part I. An Alaskan Problem. *Alaska Medicine* 13: 134-136, 1971.
- Royal College of Physicians of London, Committee on Accidental Hypothermia. *Report, London*, October 1966.
- Duckworth, W.C. and Cooper, B.C. Accidental Hypothermia in the Bantu. *South African Med. J.* 38: 295-298, 1964.
- Tolman, K.G. and Cohen, A. Accidental Hypothermia. *Can. Med. Assoc. J.* 103: 1357-1361, 1970.
- Sly, R.M. Perforation of a Gastric Ulcer in a Premature Infant Exposed to Cold. *Am. J. Dig. Dis.* 9: 525-530, 1964.
- Lathrop, T.G. Hypothermia: Killer of the Unprepared. Portland, Oregon, *Mazamas*, 1970.
- Ward, D.J. Accidental Hypothermia as a Psychiatric Emergency. *Practitioner* 196: 120-124, 1966.
- Hyams, D.E. Hypothermic Myxoedema Coma. *Brit. J. of Clin. Practice* 17: 1-4, 1963.
- Marshall, R.J. and McCaughey, W.T.E. Hypothermic Myxoedema Coma With Muscle Damage and Acute Renal Tubular Necrosis. *Lancet* 2: 754-757, 1956.
- Dyson, A. and Wood, M.W.W. Triiodothyronine in Myxoedema Coma. *Lancet* 2: 757-759, 1956.
- Lovel, T.W.I. Myxoedema Coma. *Lancet* 1: 823-827, 1962.
- Malden, M. Hypothermic Coma in Myxoedema. *Brit. Med. J.* 2: 764-766, 1955.
- Surtees, S.J. A Case of Myxoedema Coma Successfully Treated With Tri-iodo-thyronine. *Postgrad. Med. J.* 34: 443-445, 1958.
- Macdonald, D.W. Hypothermic Myxoedema Coma. *Brit. Med. J.* 5105: 1144-1146, 1958.
- Summers, V.K. Myxoedema Coma *Brit. Med. J.* 2: 366-368, 1953.
- Nielsen, P.E. and Ranlov, P. Myxoedema Coma. *Acta Endocrinol.* 45: 353-364, 1964.
- Angel, J.H. and Sash, L. Hypothermic Coma in Myxoedema. *Brit. Med. J.* 5189: 1855-1859, 1960.
- Verbov, J.L. Modern Treatment of Myxoedema Coma Associated with Hypothermia. *Lancet* 1: 194-196, 1964.
- Chatfield, W.R. Hypothyroidism in Pregnancy, Complicated by Hypothermia. *J. Obstet. & Gynaecol. Brit. Commonwealth* 73: 311-315, 1966.
- Rosin, A.J. and Exton-Smith, A.N. Clinical Features of Accidental Hypothermia, With Some Observations on Thyroid Function. *Brit. Med. J.* 1: 16-19, 1964.
- Buchanan, K.D., McKiddie, M.T. and Reid, J.M. Respiratory Acidosis in Hypothermic Myxoedema Coma. *Postgrad. Med. J.* 43: 114-116, 1967.
- Bacon, A.P.C. and Gent, A.E. Recovery from Hypothermic Myxoedema Coma. *Practitioner* 193: 325-327, 1964.
- Jones, I.H. and Meade, T.W. Hypothermia Following Chlorpromazine Therapy in Myxoedematous Patients. *Gerontologia Clinica* 6: 252-256, 1964.
- Dent, C.E., Stokes, J.F. and Carpenter, M.E. Death From Hypothermia in Steatorrhoea. *Lancet* 1: 748-749, 1961.
- Read, A.E., Emslie-Smith, D., Gough, K.R., and Holmes, R. Pancreatitis and Accidental Hypothermia. *Lancet* 2: 1219-1221, 1961.
- Sheehan, H.L. and Summers, V.K. Treatment of Hypopituitary Coma. *Brit. Med. J.* 1: 1214-1215, 1952.
- Sprunt, J.G., Maclean, D., and Browning, M.C.K. Plasmacorticosteroid Levels in Accidental Hypothermia. *Lancet* 1: 324-326, 1970.
- Hockaday, T.D.R., Cranston, W.I., Cooper, K.E., and Mottram, R.F. Temperature Regulation in Chronic Hypothermia. *Lancet* 2: 428-432, 1962.
- Gubbay, S.S. and Barwick, D.D. Two Cases of Accidental Hypothermia in Parkinson's Disease With

- Unusual EEG Findings. *J. Neurology, Neurosurgery, & Psychiatry* 29: 459-466, 1966.
30. Koeppen, A.H., Daniels, J.C., and Barron, K.D. Subnormal Body Temperatures in Wernicke's Encephalopathy. *Arch. of Neurol.* 21: 493-498, 1969.
31. McKean, W.I., Dixon, S.R., Gwynne, J.F., and Irvine, R.O.H. Renal Failure After Accidental Hypothermia. *Brit. Med. J.* 2: 463-464, 1970.
32. Magnusson, B. Exfoliative Dermatitis with Hypothermia. *Acta Dermatovenereol* 40: 161-166, 1960.
33. Krook, G. Hypothermia in Patients with Exfoliative Dermatitis. *Acta Dermato-Venereologica* 40: 142-160, 1960.
34. Grice, K., Blendis, L.M., Keir, M.I., and Harvey, R.F. Accidental Hypothermia in Erythroderma from Generalized Psoriasis. *Arch. Dermatol.* 98: 263-267, 1968.
35. Friedman, M. and Hare, P.J. Gluten-sensitive Enteropathy and Eczema. *Lancet* 1: 521-524, 1965.
36. Jones, R.H.T., Bourdillon, R.E., Finn, R., and Martindale, K. Hypothermia Associated with Pneumonia and Acidosis. *Postgrad. Med. J.* 42: 273-275, 1966.
37. Anderson, M.J. Accidental Hypothermia Complicated by Bronchopneumonia. *J. Am. Osteopathic Assoc.* 59: 379-380, 1960.
38. Thomas, J.E.P. and Gerber, S. Accidental Hypothermia. *Central African J. Med.* 11: 151-152, 1965.
39. Shirriffs, G.G. and Bewsher, P.D. Hypothermia, Abdominal Pain, and Lactic Acidosis in Phenformin-treated Diabetic. *Brit. Med. J.* 3: 506, 1970.
40. Mitchell, J.R.A., Surridge, D.H.C. and Willison, R.G. Hypothermia After Chlorpromazine in Myxoedematous Psychosis. *Brit. Med. J.* 5157: 932-933, 1959.
41. McGrath, M.D. and Paley, R.G. Hypothermia Induced in a Myxoedematous Patient by Imipramine Hydrochloride. *Brit. Med. J.* 5209: 1364, 1960.
42. Eason, D.W. and Macnaughton, F.I. Barbiturate Coma With Hypothermia. *Lancet* 1: 835-836, 1956.
43. Brennan, J.L. Case of Extensive Necrosis of the Oesophageal Mucosa Following Hypothermia. *J. Clin. Pathol.* 20: 581-584, 1967.
44. Kugelberg, J., Schuller, H., Berg, B., and Kallum, B. Treatment of Accidental Hypothermia. *Scand. J. Thoracic Cardiovas. Surg.* 1: 142-146, 1967.
45. Davies, D.M., Millar, E.J., and Miller, I.A. Accidental Hypothermia Treated by Extracorporeal Blood-warming. *Lancet* 1: 1036-1037, 1967.
46. Fell, R.H., Gunning, A.J., Bardham, K.D., and Triger, D.R. Severe Hypothermia as a Result of Barbiturate Overdose Complicated by Cardiac Arrest. *Lancet* 1: 392-394, 1968.
47. Fernandez, J.P., O'Rourke, R.A., and Ewy, G.A. Rapid Active External Rewarming in Accidental Hypothermia. *J.A. M.A.* 212: 153-156, 1970.
48. Linton, A.L. and Ledingham, I. McA. Severe Hypothermia with Barbiturate Intoxication. *Lancet* 1: 24-26, 1966.
49. Ree, M.J. Electrocardiographic Changes in Accidental Hypothermia. *Brit. Heart J.* 26: 566-571, 1964.
50. Trevino, A., Razi, B. and Beller, B.M. The Characteristic Electrocardiogram of Accidental Hypothermia. *Arch. Int. Med.* 127: 470-473, 1971.
51. Emslie-Smith, D. Accidental Hypothermia; A Common Condition with a Pathognomonic Electrocardiogram. *Lancet* 2: 492-495, 1958.
52. Maclean, D., Griffiths, P.D. and Emslie-Smith, D. Serum-enzymes in relation to electrocardiographic changes in accidental hypothermia. *Lancet* 2: 1266-1270, 1968.
53. Meriwether, W.D. and Goodman, R.M. Severe Accidental Hypothermia with Survival After Rapid Rewarming. *Amer. J. Med.* 53: 505-509, 1972.
54. Thompson, M.R. A Case of Traumatic Rupture of the Thoracic Aorta Associated with Hypothermia. *Brit. J. Surg.* 59: 243-245, 1972.
55. Trafford, J.A.P. and Hopkins, A. Letter to Editor. *Brit. Med. J.* 1: 400, 1963.
56. Burchett, G.D. Management of Hypothermia: A case Report. *J. Am. Osteopathic Assoc.* 66: 735-737, 1967.
57. Richardson, D.K. Cold Is A Killer. *Nursing Times* 66: 1234-1236, 1970.
58. Roe, P.F. Accidental Hypothermia. *Irish J. Med. Sci.* 454: 459-463, 1963.
59. Fruehan, A.E. Accidental Hypothermia. Report of Eight Cases of Subnormal Body Temperature Due to Exposure. *Arch. Int. Med.* 106: 218-229, 1960.
60. Duguid, H., Simpson, R.G., and Stowers, J.M. Accidental Hypothermia. *Lancet* 2: 1213-1219, 1961.
61. Phillipson, E.A. and Herbert, F.A. Accidental Exposure to Freezing: Clinical & Laboratory Observations During Convalescence from Near-Fatal Hypothermia. *Can. Med. Assoc. J.* 97: 786-792, 1967.
62. Riordan, F. The Use of DMSO in a Case of Severe Clinical Frostbite. *Proceedings Western Pharmacology Society* 13: 138-143, 1970.
63. Ferriman, D. Two Cases of Hypothermia. *Proceedings Royal Society Medicine* 55: 998-999, 1962.
64. Laufman, H. Profound Accidental Hypothermia. *J.A.M.A.* 147: 1201-1212, 1951.
65. Jones, R.F., Watson, D.O., and Tracy, G.D. "Cold Injury" in a Temperate Climate: Report of Three Recent Cases with a Review of the Literature. *Medical Journal Australia* 57-1 (17): 323-327, 1970.
66. Harwick, R.G. Two Cases of Accidental Hypothermia. *Brit. Med. J.* 5272: 147-149, 1962.
67. Prescott, L.F., Peard, M.C., and Wallace, I.R. Accidental Hypothermia: A Common Condition. *Brit. Med. J.* 5316: 1367-1370, 1962.
68. Love, A.H. and Womersley, R.A. Accidental Hypothermia. *Ulster Medical J.* 28: 193-196, 1959.
69. Murphy, E. and Faul, P.J. Accidental Hypothermia in the Elderly. *J. Irish Medical Assoc.* 53: 4-8, 1963.
70. McNicol, M.W. and Smith, R. Accidental Hypothermia. *Brit. Med. J.* 5374: 19-21, 1964.
71. Rees, J.R. Accidental Hypothermia. *Lancet* 1: 556-559, 1958.
72. Lloyd, E. Ll., Conliffe, N.A., Orgel, H., and Walker, P.N. Accidental Hypothermia: An Apparatus for Central Re-warming as a First Aid Measure. *Scottish Med. J.* 17: 83-91, 1972.
73. Lash, R.F., Burdette, J.A., and Ozdil, T. Accidental Profound Hypothermia and Barbiturate Intoxication. *J.A.M.A.* 201: 123-124, 1967.
74. Towne, W.D., Geiss, W.P., Yanes, H.O., and Rahimtoola, S.H. Intractable Ventricular Fibrillation Associated With Profound Accidental Hypothermia — Successful Treatment with Partial Cardiopulmonary Bypass. *N.E.J.M.* 287: 1135, 1136, 1972.
75. Coopwood, T.B. and Kennedy, J.H. Accidental Hypothermia. *Cryobiology* 7: 243-248, 1971.
76. Keatinge, W.R. Survival in Cold Water. Oxford, Edinburgh. *Blackwell Scientific Publications*, 1969, 63-74, 102.
77. Blair, E. Clinical Hypothermia. New York, 1964, McGraw-Hill, 183-187.
78. Accidental Hypothermia in the Elderly. *British Medical J.* 2: 1255-1258, 1964.
79. Exton-Smith, A.N. Accidental Hypothermia in the Elderly. *Practitioner* 200: 804-812, 1968.
80. Zingg, W. Accidental Hypothermia. *Medical Services J. Canada* 22: 399-410, 1966.

81. Wollner, L. Accidental Hypothermia and Temperature Regulation in the Elderly. *Gerontologia Clinica* 9: 347-361, 1967.
82. Patton, J.F. and Doolittle, W.H. Core Rewarming by Peritoneal Dialysis Following Induced Hypothermia in the Dog. *J. Appl. Physiol.* 33: 800-804, 1972.
83. Blair, E. Generalized Hypothermia. *Fed. Proc.* 28: 1456-1462, 1969.
84. Johansson, B.W. Electrocardiographic Changes in Depressed Metabolism, IN: Depressed Metabolism, Ed. X.J. Musacchia and J.F. Saunders, New York, 1969, *Amer. Elsevier Publ. Co. Inc.*, p. 349-354.
85. Gregory, R.T., Patton, J.F., and McFadden, T.T. Cardiovascular Effects of Arteriovenous Shunt Rewarming Following Experimental Hypothermia. *Surgery* (In Press).
86. Ledingham, I. McA. and Mone, J.G. Treatment After Exposure to Cold. *Lancet* 1: 534-535, 1972.
87. Austin, W.H., Eleanor, H.L., and Rand, P.W. pH-Temperature Conversion Factors and PCO₂ Factors for Hypothermia. *J. Appl. Physiol.* 19: 893-896, 1964.
88. Hedley-Whyte, J. and Laver, M.B. O₂ Solubility in Blood and Temperature Correction Factors for PO₂ *J. Appl. Physiol.* 19: 901-906, 1964.
89. Gregory, R.T. and Patton, J.F. Treatment After Exposure to Cold. *Lancet* 1: 377, 1972.



HYPOTHERMIA AND FROSTBITE TREATED WITH PERITONEAL DIALYSIS

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Recent articles in England,¹ Canada,¹² and the United States⁵ have shown an increasing awareness of accidental hypothermia. That this is an extremely grave illness is found in the fact that many series have greater than 50% mortality rate.^{1, 3, 4, 8, 12} Although most agree that the problem is serious, there is still not universal agreement on the best method of treatment of accidental hypothermia or hypothermia combined with frostbite. Dr. Mills in past articles has shown excellent results with rapid rewarming of frostbite.^{9, 10, 11} Some authors consider rapid external rewarming for hypothermia as dangerous. They attribute this to "abolition of intense peripheral vasoconstriction which compensates for reduced blood volume in chilled state."³ If this statement is true, then rapid external rewarming for combined hypothermia and frostbite might be salvage of limbs at the risk of life.

There has been increasing interest in "core" rewarming versus rapid external rewarming. Linton⁷ — in 1967 used open thorocotomy with warm saline irrigation to treat combined hypothermia and barbiturate intoxication. Davis,² et al in 1967 reported a case of central rewarming with a femoral cannula heat exchanger. Lash⁶ in 1967 reported a successful treatment of combined hypothermia and barbiturate intoxication with peritoneal dialysis.

This article presents four cases of accidental hypothermia which were treated initially by warmed peritoneal dialysis. All had associated frostbitten hands.

METHODS

Potassium chloride 3.0 meg/1 was added to the dialysate. Two liters of dialysate heated to 120-130° F was used per exchange. After running through the tubing the measured temperature before entering the abdominal cavity was approximately 110° F. The dialysate was then allowed to drain as fast as gravity allowed. An average exchange took 20-30 minutes. The average number of exchanges was six (6), making a total of twelve (12) liters. Three of the cases treated at the Alaska Native Medical Center had electrolytes, venous pH (femoral) and vital signs measured every

15-30 minutes. All patients were in slow atrial fibrillation and were placed on cardiac monitor. Respirations were shallow and slow but assisted respiration was not used. Nasal oxygen at 2-5 L. per plastic mask was used.

The peritoneal dialysis setup used was a standard disposable unit. The instructions can be read, the unit set up and the peritoneal trochar inserted within 5-10 minutes by a physician, even if he is not familiar with the procedure. Safety guides for the trochar are included in each set.

The dialysate was allowed to drain as fast as possible with 3-4 feet of gravity. The bottles, when empty, were then lowered to the floor, an air vent inserted and they were allowed to fill by gravity. The only modification of standard tubing was insertion of a warming polyethylene coil as frequently used in anesthesia to warm blood. The coil was surrounded by 110°F warm bath. The peritoneal output-input did not vary more than 100cc at the end of the dialysis in each case.

CASE NUMBER 1

E.S., a 35 year old Eskimo male was found in a snow bank by the police and brought to the Alaska Native Medical Center in a stuporous condition. His pulse was 50/min and EKG showed atrial fibrillation. Rectal temperature was 83°. He was fully clothed but was wet and icy. He had no gloves and his hands were cold but not frozen solid. The ambient air temperature was 10°F. His initial pH was 7.22 with a serum potassium of 3.4. He underwent peritoneal dialysis beginning 30-45 minutes after admission. Three hours later his temperature was normal, he was responsive, his pH was 7.34 with a potassium of 5.5. His EKG reverted to a rate of 100 with normal sinus rhythm. His potassium had risen to above 6mg% but decreased with continued dialysis. His hands were erythematous, hypersensitive and slightly swollen for several days but did not develop blebs. He was considered to have regained his normal level of intelligence.

CASE NUMBER 2

R.H., a 61 year old Alaskan Indian was found unconscious by police, half in and half out of an

abandoned automobile. His hands were bare but he was otherwise fully clothed. He had been drinking earlier and police estimated he had been lying in the automobile 4 hours with an ambient air temperature of -3°F. Upon arrival at ANMC, he was comatose and except for very shallow respirations, appeared dead. Peripheral pulses and blood pressure were unobtainable. His hands were white and frozen solid. His feet and face were cold but not frozen. His core temperature on admission was 79°F. His initial pH was 7.2 and serum potassium 3.8 meg/liter. The EKG showed atrial fibrillation at 40/min.

He was given two ampules of Na bicarbonate intravenously and started on nasal O₂. No other medications were given thereafter other than standard dialysate 1.5%. He was dialyzed with twelve liters of dialysate. Three hours after arrival, his temperature was normal and he was relatively alert and active. His pH was 7.42 and potassium 3.7. Six hours after admission his EKG spontaneously converted to normal sinus rhythm.

His hands were treated with rapid external rewarming after his core temperature began rising and peripheral pulses were obtainable. Warm water at 100-108°F was used. He developed large pink circumferential blebs on both hands which were treated with elevation, whirlpool and active motion was encouraged. He had no tissue loss.

CASE NUMBER 3

K.T., a 26 year old Eskimo was found lying on the tundra just outside Barrow, Alaska. His hands were bare but he was otherwise adequately dressed except his parka was not buttoned. He had been drinking earlier and police estimated he had been lying outside for two hours in an ambient of -30°F. He was taken to the Barrow Hospital, where, at first, he was thought to be moribund. He had no palpable pulses and his hands were icy and firm but not frozen solid. Rectal temperature was below 90°F (as low as the thermometer went). The heart rate was 40/min and irregular. Serum pH and electrolytes were not determined.

This patient was dialyzed with warmed standard dialysate. The trochar was initially introduced into the bladder. After bladder catheterization, the trochar was then placed into the peritoneal cavity.

He was transferred to the Alaska Native Medical Center in Anchorage the next day and found to be alert and oriented. He developed a temporary ileus, treated for 48 hours with I.V. fluids and nothing by mouth. He developed fever for 12 hours after admission along with abdominal tenderness but these findings spontaneously disappeared. He sustained no loss of tissue from his hands.

CASE NUMBER 4

W.K., a 82 year old Indian wandered out of a local nursing home after having removed all his clothes. He was found naked in a snow bank 30 minutes later. The ambient air temperature was 0°F. He was placed in a warm water bath at the nursing home until an ambulance arrived. The ambulance attendants described the bath water as room temperature. He was brought to Alaska Native Medical Center comatose, with shallow respirations. His entire body was cool but his hands were cyanotic, pulseless, cold, and mushy in consistency. His EKG showed atrial fibrillation at 50/min. His initial pH was 7.31 with a serum potassium of 5.7. His rectal temperature on arrival was 80°F but twenty minutes later, before dialysis started, his temperature had fallen to 79°F.

He was treated with nasal O₂ per mask, I.V. fluid slowly and warmed peritoneal dialysis. After three hours his temperature was normal, he was responsive and his EKG spontaneously converted to regular sinus rhythm. His pH was 7.43 and the potassium 4.5.

He developed blebs on both hands and a few on his feet. He was subsequently found chewing on his right hand which became severely infected. He lost one-half of the right ring and long fingers. The remaining fingers did well with good function. His intellectual level was difficult to evaluate as he was markedly senile before the incident but appeared to have returned to approximately the same level of mental status.

COMMENTS

The survival of a patient with accidental hypothermia is dependent upon rewarming the individual to normal temperature plus the basic support of his vital systems, particularly cardiac and respiratory, while protecting the brain from adverse affects. Also important in therapy is restoring the biochemical balance. Warmed peritoneal dialysis by warming the viscera and major vessels and perfusing in close proximity to the heart is an ideal method of central or "core" rewarming. This would tend to rewarm the irritable heart and blood centrally, maintaining the protective peripheral vasoconstriction. The frostbitten extremities were not rewarmed until a central warming response was noted by a rise in core temperature, increase in heart rate and strong pulse palpated just proximal to the frostbitten area.

That peritoneal dialysis is a practical and rapid method of core rewarming is demonstrated in this small series where normal temperatures were restored within four (4) hours after admission to

the hospital. Peritoneal dialysis also is an effective and simple means of restoring the biochemical balance of a hypothermia victim. No medications were used other than the two ampules of sodium bicarbonate in Case Number 2 before the dialysis was begun. The acidosis cleared during dialysis and the serum potassium stabilized.

The central rewarming effect may also be seen in the early spontaneous conversion of the heart to a normal sinus rhythm.

SUMMARY

Four patients with severe accidental hypothermia had rapid core rewarming with warmed peritoneal dialysis. All patients also had frostbitten extremities. All patients survived and the only extremity parts lost were attributed to secondary infection. The method proved effective, rapid and easy to implement. During core rewarming with peritoneal dialysis, the biochemical status stabilized. The recommended steps in treatment of accidental hypothermia and frostbite are:

1. Accurate diagnosis by being alert to the possibility.
2. A predetermined plan of action with necessary equipment. i.e. low recording thermometer, peritoneal dialysis unit, standard dialysate, EKG and capability of performing tests for pH and electrolytes.
3. Initial general supportive measures such as nasal O₂, I.V. fluid and any cardio pulmonary resuscitation if necessary.

4. Warmed peritoneal dialysis as soon as possible. (Remember to have attendant place dialysate in warming bath as soon as diagnosis is made.)
5. Rapid rewarming of frozen extremities as soon as a central rewarming response is noted. Use rewarming bath 100-108°F.

BIBLIOGRAPHY

1. "Cold the Killer": *British Medical Journal*, 2:1212-1213, 1964.
2. Davies, D.M., Millar, E.J., Miller, I.A., Accidental Hypothermia treated by Extracorporeal Blood Warming. *Lancet* 1:1036-1037, 1967.
3. Duguid, H., Simpson, R.G., Stover, J.M.,: Accidental Hypothermia. *Lancet* 2: 1212, 1961.
4. Exton-Smith, A.N., et al: Accidental Hypothermia in the Elderly, *British Medical Journal* 2: 1255-1258, 1964.
5. Gregory, Major R.T.,: Accidental Hypothermia, Part I, *Alaska Medicine* 13: 134-136, 1971.
6. Lash, R.F., Burdette, J.A., and Ozdil, T.,: Accidental Profound Hypothermia and Barbiturate Intoxication. *J.A.M.A.* 201: 123-124, 1967.
7. Linton, A.L., Ledingham, I.M.: Severe Hypothermia with Barbiturate Intoxication. *Lancet* 1: 24-25, 1966.
8. MacLean, D., Griffiths, P.D., and Emslie-Smith, D.: Serum-Enzymes in Relation to Electrocardiographic changes in Accidental Hypothermia. *Lancet* 2: 1266-1270, 1968.
9. Mills, W.J.Jr., and Whaley, R.: Frostbite: Experience With Rapid Rewarming and Ultrasonic Therapy. *Alaska Medicine* 2: 1-4, 1960.
10. Mills, W.J.Jr., Whaley, R. and Fish, W.: Frostbite: Experience With Rapid Rewarming and Ultrasonic Therapy. *Alaska Medicine* 2: 114-122, 1960.
11. Mills, W.J.Jr., and Whaley, R.: Frostbite: Experience With Rapid Rewarming and Ultrasonic Therapy. *Alaska Medicine* 3: 28-36, 1961.
12. Tolman, K.G. and Cohen, A.: Accidental Hypothermia. *Canadian Medical Association Journal* 103: 1357-1361, 1970.



SUMMARY OF TREATMENT OF THE COLD INJURED PATIENT

William J. Mills, Jr, M.D.

Confronted with the victim of cold injury, first consideration is a determination of the condition of the patient, as in any emergency. The degree of hypothermia present is of prime concern. General body cooling, and loss of heat, with exhaustion of caloric reserve and severe depression of core temperature may lead to death. Homothermic control is unstable and often lost to temperatures below 94°F. Continued cooling, unrelieved heat loss, may result in coma, and eventually cardiorespiratory failure even before the level of 88°F.

From resuscitation techniques perfected and utilized when general hypothermia is used as an adjunct to surgical anesthesia, we recommend rapid thawing of the patient with warm packs and blankets, or rapid thawing in a warm tub, or the use of warming fluids, or dialysis as mentioned in other parts of this issue of *Alaska Medicine*.

Whatever method chosen, one must understand the problem to obtain the best results. The intravenous infusion of glucose and water, with all respiratory aids including intubation and oxygen if necessary, are utilized, and preparation made for cardiac defibrillation, or intubation, or tracheostomy if necessary. Pre-existing anoxia, generalized, or of local tissues, and trauma with excessive blood loss, as well as alcoholic or drug stupor, may complicate treatment and recovery.

Thawing in a warm water bath, 90° to 106° F., (32 to 37.7° C.) will bring your patient rapidly to a responsive state. The change is dramatic, the patient becoming quickly alert, rational, and vocal. So rapid however, is this method of thawing, that the tissue liberation of acid end products of metabolism, and the sudden end result of metabolic acidosis may result in death by ventricular fibrillation in less than one to three hours after this mode of thawing. The result (death) may be the same by delayed thawing (that is by room temperature) without adequate supervision, death then often occurring in 24 to 48 hours.

Initial care, then, is directed to avoiding acidosis and its subsequent changes. Electrolyte monitoring by pH determination, pCO₂, and pO₂ should begin immediately, and should be checked constantly as fluids are given, particularly after the use of sodium bicarbonate or THAM. Electrocardiographic monitoring should be performed. Venous blood is sufficient for pH readings. Due to rapid changes in electrolytes,

results should be obtained quickly. Occasionally, due to loss of electrolytes from gastric suction, or from the effect of the treatment of a stress ulcer, alkalosis may occur.

In order of prognosis, from best to worst, methods of thawing are (1) rapid rewarming in water (100 to 112°F. 37.7 to 44.5°C.), (2) gradual thawing at room temperature (the problem here is the variable room temperature between that of an average heated home to that of a cool cabin in the wilderness) (3) delayed thawing or thawing with ice and snow techniques (4) thawing by excessive heat (120° F. or higher). At present, rapid rewarming is favored, this method seeming to demonstrate the greatest tissue preservation and the most adequate early function especially in deep injury. Results by gradual thawing vary in deep injury, but seem satisfactory in the superficial injury patients. Ice and snow thawing gives variable results; most often poor, with marked loss of tissue. The use of excessive heat as a thawing method has resulted in disaster in most cases, especially with dry heat at temperatures of 150 to 180° F. (66 to 82° C.) (as the use of diesel exhaust, wood fire, stove heat).

Treatment generally can be directed into two categories. (A) *Before Thawing*. Here the *frozen part must be protected to avoid trauma*, should be *thawed in a whirlpool bath or tub water bath* or if nothing else is available, with warm wet packs at 100 to 112° F. (37.7 to 44.5° C.). *Temperatures should not exceed 112° F. or 44.5° C. The thawing is completed when the distal tip of the thawed part flushes. Sedatives or analgesics may be utilized if the thawing process is painful and cannot be tolerated. The part should not be massaged. Do not use rapid rewarming if the part has previously thawed.*

(B) *After Thawing*. When injury is severe, and deep, and hospitalization is required, *the extremities are kept on sterile sheets, with cradles over the frostbitten extremity to avoid trauma and pressure*. This is not necessary for upper extremities that may be laid out upon sterile sheets over the chest and trunk. *Treatment is open*, not occlusive, without the use of wet dressings, unguents, ointments, or petrolatum gauze. *Whirlpool baths are utilized twice daily for 20 minutes at a time, at temperatures between 90 to 95° F. Surgical soaps such as hexachlorophene or*

betadine are utilized in the whirlpool. Occasionally after Moyer's method for burns, 0.5 per cent silver nitrate may be lavaged over the area of frostbite. The end result is similar to that of the soaps, hexachlorophene and betadine, epithelialization is similar, with one outstanding difference. Pain is less and infection, even superficial, is much less obvious using the silver nitrate solution. By the use of whirlpool, the debris is cleansed from the part, and superficial bacteria removed. The tissues are debrided without trauma when they are physiologically prepared to separate from the overlying eschar.

Generally blebs are left intact since the contents are sterile, as are the underlying tissues. The blebs are debrided or trimmed only if infected and contain purulent material. Escharotomy should be performed on the dorsum or dorsum or lateral aspect of the digits when the eschar is dry and has firmed sufficiently to have a cast effect on the digits limiting their joint motion. They will be debrided further in the whirlpool without prematurely exposing underlying granulation tissues. Unnecessary debridement or amputation should be delayed until sufficient time (often 30 to 90 days) elapses to demonstrate mummification and tissue death with no danger of further retraction of tissues.

In recent years, the use of felt liners has been popular as a snow boot. Occasionally an extremity (s) immersed in overflow water or wetted by other means, has sustained freezing injury, and the felt liner wet, then hardens and constricts, acting as a tourniquet about the lower extremity.

If the extremity has remained in a frozen state for some considerable time, even rapid thawing and general supportive care will not be effective in restoring the circulation and a condition similar to anterior tibial compartment syndrome may be demonstrated clinically. This condition may require fasciotomy. This condition can be determined either clinically, by the use of arteriography, or injection of isotopes such as technetium 99m. The use of split thickness skin for large granulating areas or areas where skin cover is considered proper may have skin applied from the third to the fourteenth day. The results of skin graft are best following thawing by rapid rewarming. The pedicle grafting of full thickness skin is a late procedure.

The use of antibiotics is not necessary except in deep infection. Cotton pledgets between digits will prevent maceration of tissues. Bedside digital exercises of all the joints are recommended, this done throughout the entire waking day, and Buerger's exercises for lower extremities are recommended 4 times daily at least. Narcotics

generally are not utilized in the uncomplicated cases after initial thawing. Tranquilizers or aspirin will suffice for pain. In the very early stage, sympathetic blockade, sympathectomy, anticoagulants, vasodilators, alcohol, and enzymes have not proved particularly effective.

In patients with apparently equal bilateral injury, however, results of sympathectomy within the first 24 to 48 hours have demonstrated that, while there is no further preservation of tissue, there is (1) decrease in pain, (2) marked decrease in edema, (3) much less infection superficially or deep, and (4) or early and more proximal tissue demarcation.

Patients are kept in a pleasant environment, not relegated to corners of the hospital because of odor, or tissue necrosis. The diet is high protein and high caloric, with vitamin supplements as needed and of your choice. When considered necessary, antitetanus therapy is recommended, particularly toxoid booster for those previously immunized. If for any cause, amputation must be performed, a modified guillotine procedure at the lowest level is recommended with secondary closure to be done at a later date. Dislocations and fractures pose interesting problems, and the dislocation particularly should be reduced immediately after thawing. The use of traction or trauma or manipulation or open procedures are done seldom and only then very carefully in the patient who had extremity fracture prior to his freezing. The fracture treatment should be conservative until the post thaw edema is eliminated. It may be that well padded plastic mold is the best method of treatment until there is cessation of edema. If open reduction of fractures or dislocations is required, great care must be utilized to avoid further vascular injury. Postoperatively, the operated part in a plastic posterior mold may still undergo whirlpool therapy and active digital exercises. The prognosis of this combined injury is poor because of injury to the regional vascular supply from fracture trauma, and then the added insult of superimposed freezing injury. It is here that fasciotomy may be required to relieve the deep structure pressures. Fluids are encouraged, dehydration is to be avoided and electrolyte balance maintained. Smoking is discouraged; alcohol may be permitted.

The above is a basic program to which you may add any other therapy of choice. The following illustrations provide a visual summary of the salient factors in therapy.

BIBLIOGRAPHY

Current Therapy: Cold, Disturbances Due To, W. B. Saunders & Co. 1964, 1965, 1966, 1968.

SUMMARY



Thaw rapidly in warm water (100 - 112°F.)



Avoid bleb rupture when transporting patient



Protect injured parts during bleb stage



Avoid premature debridement or surgical intervention



Do incise constricting eschar with lateral or dorsal slits to permit IP joint movement



Twice daily whirlpool bath will permit physiological separation of necrotic tissues from newly formed epithelium below



Constant MP and IP joint motion is demanded, from completion of thawing to end of treatment



Thaw the injured extremity by the rapid rewarming method and do an immediate reduction of the fracture or dislocation. Avoid further freezing constriction by cast or excessive traction. Avoid all neurovascular trauma. (The above injury demonstrates the result of an unreduced fracture-dislocation of the tarsal navicular and spontaneous thawing.)

NORTHERN HIGHLIGHTS - 5

SELECTED ABSTRACTS ON MEDICINE IN THE NORTH

MUMPS VIRUS INFECTION

Aase, J.M.; Noren, G.R.; Reddy, D.V.; St. Geme, J.W., Jr.

Mumps virus infection in pregnant women and the immunologic response of their offspring. *New England J. Med.* 186: 1379-1382, 1972.

The paper studies the immunologic response in 12 children of mothers who had evidence of mumps infection during their pregnancy. The senior author is associated with The Arctic Health Research Center and is also in private practice in Anchorage.

A severe mumps epidemic swept through the Eskimo population of St. Lawrence Island the winter of 1956-57, affecting some 88% of the residents of the island. The present study was performed in 1967 to determine whether any developmental or immunological changes had occurred in children born of mothers who had been pregnant at the time of the epidemic. The 12 subjects were the offspring of 11 women who were or became pregnant during the epidemic. Five mothers has clinical mumps and the other 6 had elevated CF antibodies immediately after the epidemic. All had neutralizing antibody at the time of the study. The 12 subject children were compared with 9 older siblings who had been exposed to mumps during the epidemic and with 32 other children conceived and born after the epidemic had run its course.

None of the subject or control children revealed major physical abnormalities. A mumps virus skin test was positive in 83% (10/12) of the study subjects, in 19% (6/32) of the post-epidemic controls and 100% of the pre-epidemic controls. A pre-skin test serum sample was tested for neutralizing antibody and was negative for all study children, positive in only 1 of 32 post-epidemic controls, and positive in all but one pre-epidemic controls.

Fourteen days after the skin test a repeat neutralizing test was performed to detect an anamnestic antibody response. It was positive in 3/12 study subjects, 9/9 pre-epidemic controls and 3/31 post-epidemic controls. It is suggested that the antibody findings on the post-epidemic controls may have been due to subclinical infections during visits to the mainland or to cross reactions with parainfluenza viruses.

To explain the differences between the skin test and the neutralization test results in the subjects, the authors offer the hypothesis that insufficient antigenic mass may evoke cellular immunity without humoral immunity in the immunologically immature fetus.

POPULATION TRENDS

Bloom, J.D.

Population trends of Alaska Natives and the need for planning. *Amer. J. Psychiat.* 128: 112-116, 1972.

This paper discusses some of the factors which influence the population trends and age distribution of the Alaska Natives. Dr. Bloom is a psychiatrist in private practice with the Langdon Clinic in Anchorage.

A comparison of the decennial census tabulations since 1880 shows an initial decline in the Native population, probably due to the devastating effects of epidemic disease, followed by a steady increase beginning in the period 1910-1920 and continuing until 1950. The period 1950-1960, on the other hand, was characterized by a population explosion, with a total increase of some 27.1%.

In the 1950's and early 1960's, there was a considerable change in the health programs serving the Native people. With the formation of the Division of Indian

Health of the USPHS in 1955, considerable emphasis was placed on the two most serious health problems: tuberculosis and infant mortality. Dramatic results ensued and Native death rates declined sharply. During this same period, however, the federal government, as a matter of policy, did not encourage programs in family planning.

The outcome of this period of high birth rate and low death rate was a rapid population growth. The population moreover became heavily skewed toward youth. In 1966, for example, the median age of Alaska Natives was 16.2 years, compared with the national median of 29.5 in 1960.

The author goes on to discuss the mental health implications for this youthful minority population thrust into a rapidly changing larger society. The need for family planning is stressed but also the need for more responsive educational programs and adequate funding for social agencies dealing with the complex problems the Native people face. Perhaps the best hope for future progress lies with the Native associations with their ability to cope with issues of human service and their financial base under the Land Claims legislation.

CANCER OF THE PAROTID GLAND IN ALASKA NATIVES

Arthaud, J.B.

Anaplastic parotid carcinoma ("malignant lymphoepithelial lesion") in seven Alaskan Natives. *Amer. J. Clin. Path.* 57: 252-286, 1972.

This paper reports seven cases of anaplastic parotid carcinoma of apparent ductal origin seen in Alaska Natives during an 18 month period. Dr. Arthaud was formerly pathologist at the Alaska Native Medical Center but now is located at the Peter Bent Brigham Hospital in Boston.

The tumors were recovered from two male and five female patients ranging in age from 26 to 52 years. Five patients were Eskimos from coastal villages; the other two were Indians from the Interior. One tumor was discovered on a routine physical, whereas some others presented as a painful mass. Three of five patients treated by parotidectomy with radical neck dissection had lymph node metastases. One patient had a partial parotidectomy and another had 3 local excisions. Although followup has been short, there were no deaths attributable to the disease.

Pathologically, the majority of the tumors were encapsulated. Each was distinctly outlined and had a prominent lymphoid background around numerous epithelial islands. The cells were spindle-shaped with vesicular nuclei and scant cytoplasm. Ductal squamous metaplasia of various degrees was seen. Ductal lumens could be seen in continuity with the tumor in all cases. The tumors were thought to have their origin in the lining epithelium of the ducts within the parotid gland.

The author also reviewed thirteen other similar cases reported elsewhere. Of the total of 20 cases, 16 had resided in the Alaskan or Canadian Arctic. Five had resulted in death 9 months to 5 years after initial therapy. The cause of this tumor remains an enigma.

SOME HAZARDS OF ESKIMO FOODS

Bender, T.R.; Jones, T.S.; DeWitt, W.E.; Kaplan, G.J.; Saslow, A.R.; Neviun, S.E.; Clark, P.S.; Gangarosa, E.J.

Salmonellosis associated with whale meat in an Eskimo community. Serologic and bacteriologic methods as adjuncts to an epidemiologic investigation. *Amer. J. Epidem.* 96: 153-160, 1972.

This paper describes the epidemiological investigation of an outbreak of gastroenteritis due to *Salmonella enteritidis* occurring at Tununak, a small Eskimo community on Nelson Island, in Western Alaska. The authors are with the Center for Disease Control and the Arctic Health Research Center.

In August 1969 a large number of villagers became violently ill within 24 hours of eating uncooked muktuk from the tail and flippers of a dead whale which had been discovered a week earlier on a distant beach. A total of 105 persons (40%) out of a population of 265 became ill, the vast majority with diarrhea, fever, chills, nausea, and vomiting. Seventeen of the sickest victims were promptly evacuated to the Alaska Native Hospital at Bethel and then on the the Alaska Native Medical Center in Anchorage. The average duration of diarrhea was 5.9 days. There were no deaths.

Of the 99 persons who admitted eating whale, 94% became ill, whereas 7% of the 166 persons who denied eating the whale also became sick, indicating some secondary spread of the infectious agent. In the majority of cases, illness developed within 12 hours of ingestion.

Stool specimens were collected from 135 villagers during the first 11 days of the epidemic and *Salmonella enteritidis* was recovered from 65 (48%). All 17 hospitalized patients yielded positive cultures from the stool and 3 had positive blood cultures. The organism was also recovered from a sample of whale meat. After one month, 18 persons still had positive stool cultures and 4 were positive after 4 months. A total of 184 paired sera were taken and 58% showed a fourfold or greater rise in antibody titer, correlating well with clinical and bacteriological findings.

Eight patients were treated with antibiotics and all eight showed positive stool cultures at one month.

The course of the organisms could have been either intrinsic infection of the whale or extrinsic contamination from bird droppings on the dead carcass.

Miller, L.G.; Clark, P.S.; Kunkle, G.A.

Possible origin of *Clostridium botulinum* contamination of Eskimo foods in Northwestern Alaska. *Applied Microbiology* 23: 417-418, 1972.

This short paper summarizes work done by the Arctic Health Research Center to investigate the environmental sources of *Cl. botulinum* Type E in the arctic regions of Alaska.

A number of outbreaks of Type E botulism have occurred in Alaska, chiefly in the Northwestern region, and usually associated with meat from marine mammals. In this study, a total of 23 soil samples were collected from beaches at Kotzebue, Point Hope, and Elephant Point and incubated anaerobically. Of the 23 samples, 17 produced Type E toxin and the organism itself was isolated from at least one sample from each locality. It is significant that the local Eskimos were butchering marine mammals on the very beaches at Kotzebue and Elephant Point where the samples were taken. It is reasonable to conclude that some of the human outbreaks may have resulted from environmental contamination of meat cup up on those beaches.

DENTAL DISEASE IN ARCTIC POPULATIONS

Bang, G.; Kristoffersen, T.

Dental caries and diet in an Alaskan Eskimo population. *Scand. J. Dent Res.* 80: 440-444, 1972.

This paper summarizes the effects of a radical change in diet on the rate of dental decay over an 8 year period in the Anaktuvuk Pass Eskimos.

The authors are with the Gade Institute and School of Dentistry at the University of Bergen, Norway.

This study is based on two surveys of the people of Anaktuvuk Pass, the first in 1955-57 and the second in 1965. On both occasions, the investigators conducted a dietary assessment and performed dental examinations on the majority of residents of the village. Fifty-four persons were examined at both visits and others on one occasion only.

Striking changes were noted both in dietary habits and the prevalence of dental decay over the 8-10 year period. In 1965, the intake of protein had decreased by almost 50% over the previous survey, the caloric balance being made up largely by carbohydrate. While 50% of children in 1955-57 had caries-free primary teeth, all children had decayed teeth in 1965. The DMFT rate had increased from 3.0 to 5.6. For those over 6 years, the percentage of caries-free individuals declined from 74.5% to 0% and the DMFT rose from 0.8 to 3.1. In the age group 30 and over, none had cavities in 1955-57, whereas all had cavities in 1965.

Although many changes had occurred in the life style of the villagers during the 8-10 year period, the authors relate the change in dental decay primarily to dietary factors.

McPhail, C.W.B.; Curry, T.M.; Hazelton, R.D.; Paynter, K.J.; Williamson, R.G.

The geographic pathology of dental disease in Canadian central arctic populations. *J. Canad. Dent. Assn.* 8: 288-296, 1972.

In May 1969 a team of three dentists and an anthropologist made an extensive dental survey of the communities of the Keewatin District of the Northwest Territories. The study concentrated on the school children of the Eskimo communities on the western coast of Hudson's Bay with some attention also to the adults and preschool children of the region. The authors are with the University of Saskatchewan and the Saskatchewan Provincial government.

A total of 529 school children between 6 and 15 were examined, some 85.6% of all school children in the study settlements. The major problem was dental caries, with 82% of the 6-7 year olds being afflicted. Anterior primary tooth decay was particularly prominent. Both primary and permanent tooth decay were significantly higher among the children of the coastal settlements as compared with those of the interior.

Periodontal disease was also very widespread, both mild gingivitis and more severe forms of gum disease. "Trapped" upper lateral incisors, was a particularly prevalent malocclusion problem in the Eskimo children.

Treatment needs, of course, were extensive. For example, 75% of Eskimo children (6-16) required restorative treatment and 29% had unmet extraction needs. The needs among preschool children and adults were also high.

The team concluded that unmet dental needs were a very significant health problem in this region of the Central Arctic, and that the severity of the problem was related to the recent changes away from the traditional Eskimo diet. The group recommended that mobile dental teams be based in Churchill, Manitoba and Rankin Inlet, NWT, for regular visits to these outlying communities, and that Eskimo dental health technicians be trained in basic techniques of hygiene and prevention.

— Robert Fortune, M.D.

BOOK REVIEW

Doctor and Patient and The Law by R. Crawford Morris, LL.B. and Alan R. Moritz, A.M., Sc. D., M.D., Saint Louis, The C.V. Mosby Company, 1971. 554 pages.

Doctor and Patient and the Law by R. Crawford Morris, and Alan R. Moritz, is the fifth edition of a book by the late Louis J. Regan, M.D., LL. B., whose purpose was to present a "concise treatment of the subject of legal medicine". The authors claim that there has been considerable revision in the new edition in format and content, but since none of the previous editions are available in Anchorage, it is not possible to make a comparison.

While medicine has become increasingly complex so has its involvement with legal problems. Of necessity, this is a broad and general book. Differences in state laws preclude nation-wide and consistent decisions. Indeed the problems modify at such a rate that issues have changed since the book's publication in 1971.

Text is in four sections.

The Rights and Duties of Physicians is the first. The cornerstone of medical legality is the license to practice. Virginia had such a law in 1639 but by 1850 there were no regulations anywhere in the U.S. governing the practice of medicine. It was only in 1900 that acts in all states were contested by those who felt it an inherent right to practice medicine. The law recognizes the physician's right to compensation based on an implied contract which does not depend on his success in curing the patient.

Among the most intriguing subjects is that of artificial insemination. In a technical legal sense the child is illegitimate and while he is protected to some extent by the legal presumption of legitimacy, there are only a few states which have passed bills making children conceived by artificial insemination legitimate.

In Section two, Rights and Responsibilities — Patients and Physicians, it is interesting to note that there is no privileged communications in common law. Some states however have given it statutory status. Also there have been significant legal developments regarding the mentally ill especially voluntary admission legislation which exists in all states save Alabama.

Medical Testimony, the third part, deals with the physician as a witness, detailing trial procedure.

The final, Medical Professional Liability is the largest section of the book. It deals with all possible civil liability a physician can incur as a result of any of his professional acts. This is a serious problem to the physician and the

public. There have been various plans developed to solve this problem. The most successful seems to be attorney-physician oriented, whereby doctors furnish the plaintiff/patient's attorney with medical experts to impartially advise or testify in exchange for the attorney's agreement either to be bound thereby or to consult the experts before filing of a suit.

Alaska is mentioned as one of four states with the highest claim rates but the only one with an uninsured rate higher than the national average. It also has the greatest number of physicians not satisfied with their insurance company. Alaska has passed a statute outlawing "res ipsa loquitur" (it speaks for itself) in malpractice cases thereby making the patient bear the burden of proof.

This is a superbly documented book. It is fascinating though depressing reading for the physician practicing today. And indeed for the lawyer too!

— Rodman Wilson, M.D.

Medical Jurisprudence by Jon R. Waltz, LL.B. and Fred E. Inbau, LL. B., LL.M.; New York, The Macmillan Company, 1971. 398 pages.

The authors are professors of law at Northwestern University School of Law. They have written an orderly thoroughly documented, admirably spare book about how the law works with respect to medical matters. Topics such as licensing laws, professional ethics, malpractice, informed consent, patient privilege, tissue transplantation and abortion are presented.

The book is illuminating as to what has happened or may happen when a doctor is not cautious and reassuring. Courts usually sustain thoughtful care even when results are not ideal.

Whether reading a book such as this makes one a better or a poorer physician is a proper question. Practicing with legal hazards prominently in mind can make one timid and unimaginative. Few patients are hurt and equally few are brilliantly helped. Maybe this is good. But in the long run, overly-cautious care, leads to mediocre care. One gathers, for example, that one should never say to an anxious patient "you are going to be all right". Why not? Because that is a guarantee and therefore sedulously to be avoided. But every good physician knows that such comforting words are highly appropriate at times.

The book is easy to read. Very clear, and fully annotated.

— Rodman Wilson, M.D.



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The Norton Sound Health Corporation, a regional consumer controlled medical delivery system serving fifteen Eskimo villages is seeking applications for physicians services to commence July 1, 1973 or before.

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THE OPEN DOOR CLINIC

David Kirkpatrick, M.D.

Its patients are mostly young — from fifteen to twenty-five years — though they range from infancy to eighty-six years; its usually quiet “lobby” is peopled with chess or gin players or passers-through; its examining rooms are neatly and adequately appointed but are conspicuous by the absence of vinyl and stainless steel (wood and linoleum being predominant). Though its annual budget is about \$45,000, its staff includes a full-time registered nurse and social worker, two peer counselors, nine volunteer doctors, one laboratory technician, one lawyer, two full-time school teachers, and one teaching assistant.

Located off the rush of Sixth Avenue and Eagle Street, the Anchorage Open Door Clinic — also known on its brown and yellow shingle at its front entrance as the Open Door Klinik — is now beginning its third year of medical, legal, educational, counseling and personal services to a number of people in and around the Anchorage area who, for reasons of privacy, finance, personal life style, or some combination thereof, prefer its milieu and style to that of other helping agencies in Anchorage. In 1972, Open Door’s client-visits numbered about 1600; most of these were from white middle-class backgrounds, although a small number of blacks and Natives also came.

This suggests that free clinics are not an updated version of the old charity clinics. Dr. David E. Smith, who in 1967 founded the first free clinic (the Haight-Ashbury Free Medical Clinic in San Francisco) says, “The ‘free’ in free clinic refers more to a state of mind than to the absence of a cashier . . . a philosophy of service in which the PERSON is treated rather than his or her disease . . .”¹

While free clinics have been a fixture in other cities such as Los Angeles (LA Free Clinic), Vancouver (Kool Aid), and Seattle (Seattle Open Door) since the counter-culture explosion in the middle 1960’s, it was not until autumn-1970 that a young social organizer working together with a Public Health Service physician and local attorney started the Anchorage Open Door Clinic to “. . . be a community in which the giving and receiving of love and caring is honestly done; to treat drug-related problems . . . by dealing with interpersonal relationships.”² Though others in Anchorage had and do have some interest in this approach to these problems, this was the first group avowedly and directly to begin working with this emphasis.

Once started, the Clinic lived on the ragged edge of chronic financial failure for two years,



sustained by frequent and humble hustling of funds by its first director and his assistants. In addition, there were regular donations of both unwanted (lasix and digoxin) and very much wanted (penicillin and Gantrisin) drugs by local doctors and pharmacies. With the help of Dr. Frederick McGinnis, State Commissioner of Health and Social Services, the Clinic also received Family and Child Welfare Division funds in 1971 that were soon matched by Federal Title 4A funds; since then, the Clinic has moved into its own adolescence with less serious, though recurrent, money problems.

What goes on in a “typical” day at the Open Door Clinic? During the day the nurse sees and triages from ten to fifteen people with sore throats, yeast infections, requests for information about birth control and drugs (both street and prescriptive), or counseling problems. On Monday night one of the nine volunteer doctors (four from private practice in Anchorage, five from the Alaska Native Medical Center) will see and treat from five to fifteen patients — either referrals from the day clinic or drop-ins. A number of patients seen in both the day and night clinics will eventually be referred to cooperating medical or dental specialists in Anchorage for follow-up (442 referrals were made in 1972).

Diagnosis in this manner may be circuitously efficient. Recently, a 28 year old woman treated at the Clinic for pelvic inflammatory disease by one of the doctors, was referred to an Anchorage Borough public health specialist where she was further evaluated for pelvic disease and finally referred to a local gynecologist for a suspected ovarian abscess.

A new doctor in the Clinic may discover not only that procedure is slightly different from that

to which he or she is accustomed, but also that the patients may be different from the ones he or she workd with daily. Respect for a doctor's efforts and appreciation are not uncommon; reverence and deference are more unusual. An Open Door doctor's treatment is challenged on ethical or ecological grounds occasionally, and the devoted patient is unusual, or perhaps nonexistent. What is more common (and rewarding) is the curious, questioning patient who delights in frank, direct answers and discussion about his or her body and why it is working the way it is on that particular day.

Meanwhile, on Third and Cordova, two school teachers are working with nine teenagers from 14 to 17 years old in creating a new (and to date, unaccredited) curriculum and learning situation different from the one they have dropped out of. Classes such as painting, photography, first aid and women's history are offered.

Later in the week a local lawyer will meet with people who have questions about civil law — tenants' rights, legal procedure, and welfare clients' options. A second medical clinic will be held on Thursday night. Finally, throughout the week, the Clinic's "lobby" (in fact, the first level of the two story frame building) will provide a place for anybody to sit and relax, meet a new or old friend, or perhaps simply to warm up.

The Open Door Clinic is established, a *fait accompli* for street and establishment people. Questions and challenges now have less to do with the month's utility bill than with the directions it should move in, in meeting which needs of its people. Its most recent development is "Truckin'," a thirty minute radio program broadcast weekly on a local Anchorage station and composed of equal parts of rock music and discussion about drugs,



sex, venereal disease, birth control, money and other topics of interest to the program's listeners.

Though the latest, "Truckin'" is perhaps not the last event in the Open Door process — an ongoing experiment in how two groups of people — the helpers and the helped — can better get together in a way that is humanly rewarding the therapeutic for both and with their differences comfortably realized and accepted by each.

References

1. A General Survey of Free Clinics as Alternatives to Existing Health Care Institutions. Department of Health, Education and Welfare, Office of Youth and Student Affairs, p. 1, October, 1972.
2. Cysewski, Steve. Task Force Report on Half-Way Houses. Unpublished proposal written for joint NIMH-Greater Anchorage Borough Health Department project, 1971.



WHAT EVER HAPPENED TO CHLOROSIS?

Frank Panettiere, M.D.*

In Alaska at this time of the year, after so many months of whiteness, many of us welcome the reappearance of green. In consideration of this, it seems appropriate for us to discuss the green disease, Chlorosis.

This disorder holds an interesting place in medical history. It was a very well described syndrome which seemed to appear suddenly and then, just as suddenly, to disappear, apparently without leaving a trace. This discussion will show that the coming and going of this syndrome are related to changing concepts of disease pathogenesis, and help us put into perspective a history of the development of hematology.

Chlorosis was regarded as a distinct medical entity from the sixteenth through the nineteenth century. The term was first coined by Jean Vavandal in 1620 from the Greek word *chloros* (which means green). Castelli's Medical Dictionary in 1685 defined chlorosis as a disease associated with the loss of blood in marriageable virgins suffering from a disease of the uterus. The current Merriam Webster's New International Dictionary defines chlorosis as "an iron deficiency anemia in young girls characterized by a greenish color of the skin, weakness, and menstrual disturbances".

So the outlines of the syndrome are clear: anemia and greenish skin in young ladies. It is a rather striking clinical picture. How could such a condition so suddenly appear in the sixteenth century having gone entirely unnoticed by the many great clinicians of the past? And again, after being so well described for three centuries, why is it we no longer recognize it today? To answer these questions, let us try to follow chlorosis through history.

The earliest reference to a syndrome later called chlorosis comes from Egyptian papyri. A condition referred to as *aaa* is mentioned 28 times in the Ebers papyrus and several times in other papyri. The picture we derive is of abdominal pain and distention, palpitations, and "bloodstained evacuations". Occasionally, worms were passed. The ancient Egyptians believed this illness was all due to an occult magical influence they called *aaa*. Later authors called this syndrome "Egyptica Chlorotica". However, it was not chlorosis as we now understand it. Rather it was due to an infestation with multiple parasites including

ankylostoma duodenale with a secondary iron-loss anemia (1).

In the Hippocratic collection, there are scattered allusions to illness of pubescent girls which were thought due to retention of blood in the uterus. Although later authors considered these to be the earliest references to what was later called chlorosis, the astute Hippocrates failed to mention any green complexion.

In the second century, Galen wrote the 120 books which were to form the basis of all medical thought for the next dozen centuries. He too failed to describe a disorder of green young ladies (2). However, the concepts he did codify served to impede the development of modern hematology, and so gave room for the later concept of chlorosis. To Galen and his successors, blood was not composed of corpuscular matter suspended in plasma, but rather a mixture of humors. Anemia as such is entirely foreign to this concept of physiology. But even if Galenic theory did greatly delay the modern understanding of diseases of the blood, it would take more than this alone to explain the sudden appearance of chlorosis.

The credit for the first unequivocal description of chlorosis goes to Johannes Lange (3). In his *de morbo virgineo* of 1520, he wrote of a condition which he felt to be rather common. The picture he described is of a young lady who on reaching marriageable age, develops pale, bloodless cheeks and lips, suffers palpitations on minor exertion, has a visibly bounding temporal pulse, evidences dyspnea on dancing or climbing stairs, and develops food perversions. He called the syndrome "white fever" or love sickness. Among his references was a quotation from Ovid's *Ars Amatoria*: "Paleat omnis amans, hic est color aptus amanti" (Every lover becomes pale for this is the proper color for the lover). Lange's prescription for this problem is as follows: "I instruct virgins afflicted with this disease that as soon as possible they live with men and copulate". (Apparently such activity would serve to loosen uterine obstructions.)

It would appear that there must have been some subtle change in color perception over the next century, for it was in 1620, precisely 100 years later, that Jean Vavandal coined the term "chlorosis" or greensickness to describe this same syndrome (4).

The further development of the concept of chlorosis paralleled the genesis of hematology which began at this time. In 1590, the compound microscope had been invented. In 1658, Jan

*The views expressed herein are those of the author and do not necessarily reflect the views of the U.S. Air Force or the Department of Defense.

Swammerdam first described red blood corpuscles. In 1681, Willis gave the first report that an essential feature of chlorosis was watery blood. For the next century and a half, this was believed due to excessive fluid matter in the blood rather than decreased blood cells. This concept was corrected with the development of the forerunners of our tests of hematocrit, hemoglobin, red count, etc.

In 1840, in what was probably the first attempt at estimating a primitive hematocrit in chlorosis, Hoefer reported that the clot formed from the blood in these patients was unusually small. He then observed drops of blood under the microscope and noted that in chlorosis the red cells were less closely packed, and so lower in number than in normal blood. In effect, he was saying that in chlorosis there was what we could call a low red blood count. The determination of hemoglobin content in chlorosis has a longer history. Lemery and Goeffry had demonstrated the presence of iron in the ash of blood in 1713. In 1832, Foedisch showed that patients with chlorosis had blood deficient in this element. In 1840, Hoefer showed that chlorotic blood was less red than normal, and 15 years later, Papp reported that it was actually the individual cells which were paler. In 1867, Duncan under identical conditions compared chlorotic with normal depth of color. He then noted that the chlorosis patients had close to the same number of red cells as normal persons, and so concluded that each individual cell must have been low in pigment content. Today, we would call this hypochromia. Eleven years later, William Gowers invented the hemoglobinometer which greatly simplified studies of chlorosis and anemias in general.

In 1889, Hayem made the final important laboratory observations in chlorosis. He demonstrated that while in normal individuals, the erythrocyte had a 7.5 micra diameter, in chlorosis, the figure dropped to 6.5 or even 6.0. He also showed that the amount of hemoglobin per cell — what he called “*valeur globulaire*” (we would call it “mean corpuscular hemoglobin”) — was less than normal in the chlorotic patient’s blood.

The various recommended therapies of chlorosis through the years depended on the different theories on its pathogenesis. Galenic physicians observed the scanty menstrual flow and thought that the disorder resulted from retention of blood in the uterus. Therefore, they recommended purgatives and early marriage. When whalebone corsets became in style, splachnoptosis with displacement of the spleen and abdominal sympathetics was thought to be at the root of the disease. Therefore, looser garments were recommended. Several other physicians noted appetite perversions — today, we might call some of these “*pica*”. There was a great discussion as to

whether the foods they ate were pathogenic, or whether a lack of vital dietary factors caused chlorosis. Gradually, there developed the final theory that chlorosis was a result of a long-term dietary deficiency of iron.

Descriptions of the chlorosis syndrome were not only well represented in the clinical literature, but also in the non-medical fields. It is not surprising that it is frequently commented upon in the lay literature when it is realized that girls developing into womanhood do engender a good deal of attention. Shakespeare was well aware of the chlorosis syndrome and frequently used the term “*greensickness*” as a term of abuse. Recall, for example, how Capulet expressed his anger at Juliet for not wishing to marry Paris:

“ mistress minion, you, Thank me no thankings, nor proud me no prouds, But fettle your fine joints ‘gainst Thursday next, To go with Paris to St. Peter’s church, Or I will drag thee on a hurdle thither. Out, You *greensickness* carrion! Out you baggage! You tallow face! (5)

Since elsewhere Shakespeare described Juliet as having “*beauty too rich for use, for earth too dear*”, this description of a pale green complexion must be considered as a derisory epithet rather than an accurate description of this young lady.

However, many patients, especially those of the Dutch school, depicted in their portraits of young women, a distinct greenish hue to their skin coloring. Moreover, in addition to these observations of the “*green disease*” in England and Holland, there were also ample reports of it in North and South America as well as parts of Asia and Africa. Strangely, although it was commonly observed among the Swedes, it was rarely reported in Russians. It was frequently seen in the Moors in Algeria but very uncommon in Egypt.

This nearly world-wide occurrence of a syndrome which was well-described for three centuries leads us back to the question “Why do we today no longer see pale, greenish, anemic young ladies? The main clue to the answer comes from the writings of the great clinicians of the early twentieth century.

Sir William Osler wrote: “It must be borne in mind, however, that in many patients undoubtedly chlorotic, this sign (the green color) may not be marked”. (6) Cabot wrote: “It takes the eye of faith to see any justification for the title of this disease. If one exercises a great deal of imagination, one may possibly see the slightest imaginable tint of olive green in the shadow beneath the chin, but that is all. To the ordinary eye, the color is a yellowish pallor in brunettes and a whitish although extreme pallor in blondes”. (6)

Therefore, chlorosis seems to have been simple iron lack anemia which became clinically manifest after the menarche. In 1620, Vavandal gave this already well described clinical picture the fanciful name "chlorosis". For nearly the next three centuries, physicians convinced themselves they saw a greenish color to such patient's skin, "greensickness" became a derisive term inside and outside literary works, and many a painting showed a pale greenish tint to a young lady's complexion. Only in recent years when a fuller understanding of the pathogenesis of iron-lack anemia left no room for a green color, did this misconception fade away.

BIBLIOGRAPHY

1. Ghalioungui, P.: *Magic and Medical Science in Ancient Egypt*. New York, 1963.
2. Siegel, R. E.: *Galen's System of Physiology and Medicine*. Basel, 1968.
3. Lange, J.: *De morbo virgineo, medicinalium epistolarum miscellanea*. Basel, 1554. (Trans by R. H. Major in *Classic Descriptions of Disease*, 3rd Edition, Baltimore, 487-89, 1959.)
4. Fowler, W. M.: Chlorosis — An Obituary. *Ann Med Hist*, 8:168-177, 1936.
5. Shakespeare, W.: *Romeo and Juliet*, Act III, Sc V, 154.
6. Cited by Fowler in reference 4.



MEDLINE

Hotline to Biomedical Information

Ursula Strash

What does MEDLINE mean to you? Unless you have used it — probably not much. The name, which is an acronym for MEDLARS on-Line (MEDLARS being the acronym for Medical Literature Analysis and Retrieval Systems) does little to stir one's imagination. However, MEDLINE truly is one of the most exciting innovations in computerized services which have been created for members of the health professions.

A highly efficient indexing system, MEDLINE provides remote, online access to specific portions of the literature contained in over 1200 of the world's leading biomedical journals. A telephone and remote terminal are all the equipment needed to tap this centralized bibliographic resource of some 400,000 — 500,000 citations, which are stored in a computer at the National Library of Medicine in Bethesda, Maryland.

Upon request, the computer will conduct a nearly instantaneous bibliographic search of the literature and the user immediately receives a printed bibliography on his terminal. Arranged in chronological order, the period covered by MEDLINE is approximately three years. If many articles are involved one has the option to request an off-line printout of the bibliography or a portion of it, which will be sent by mail. If a health professional has a continuing interest in a subject he can ask for an automatic, monthly updating of the material.

The computer carries on a conversation with the terminal operator, says "hello" and "good-bye", assists the inexperienced operator in the use of search commands, and will report on all that's new in the NLM computer world if asked to do so.

Deceptively simple though it may appear, MEDLINE is a highly sophisticated product, the latest in a series of computerized bibliographic indexing systems which began with MEDLARS. Credit for this entire remarkable development goes to the National Library of Medicine which initiated these services in 1964, when the first issue of *Index Medicus* came off the computer tapes. The production of this and other major indexes soon became a routine matter. NLM also uses the MEDLARS data base for the publication of recurrent bibliographies, which now number twenty-three. Some 22,000 journals are presently indexed in this system.

Demand searches of the medical literature for individual physicians and scientists also were introduced. Early users often had to wait many weeks to receive their bibliographies and sometimes these would include a host of irrelevant citations. These inevitable shortcomings gradually were overcome, though. Additional MEDLARS Centers were established; more search analysts trained, etc., and search requests handled with greater dispatch. Increased selectivity and specificity improved the relevancy of the citations and many excellent, comprehensive literature searches were produced.

MEDLARS had become a useful searching device, especially for those involved in biomedical research. The system appeared to be somewhat less practical for the clinician and others concerned with direct patient care. These individuals often require quick access to bibliographic information and frequently wish to locate the most significant current articles rather than exhaust all available literature. Clearly needed, or so it seemed, was simple, rapid, on-line access to bibliographic information from any geographic location.

— To investigate this hypothesis, AIM-TWX (Abridged Index Medicus Teletypewriter Exchange), an early experimental MEDLINE project, was started in 1970 by NLM's new Lister Hill Center for Biomedical Information. The data base consisted primarily of the clinically oriented journals indexed in the Abridged Index Medicus. Instant access to the system was by teletypewriter. Success was immediate!

The experiment caused great excitement and spurred the development of the present MEDLINE system which became operative in 1971. One of the major hurdles in its development was the cost of telephone line charges, which in the AIM-TWX experiment had been assumed by user institutions. These charges reached prohibitive proportions as geographic distance from the computer increased.

MEDLINE service is now available through a nationwide communications network, for which the cost is assumed by the National Library of Medicine. Some 35 major population Centers have toll free access to the computer. Others must pay connecting line charges to the nearest access node. (Alaska's network access node is Seattle).

Can any hospital or clinic choose to install a MEDLINE terminal? The answer is: no. The computer system can support only a limited

number of simultaneous users. This number is being expanded in various ways but some control over the distribution of terminals is essential to insure nationwide coverage. Over 100 MEDLINE Centers have been established throughout the nation since 1971. By the end of 1973 about 150 centers will be operating. Each Center must agree to provide MEDLINE services to health professionals within its region.

It must be realized that the computer access merely represents the first step in a process, it facilitates the selection of pertinent information, but does not actually provide it. The literature itself must be readily available or the enormous expense involved in maintaining a nationwide network of on-line computer access could not be justified. It is the task of the MEDLINE Centers to provide the documents as rapidly as possible.

So far the entire cost of developing and maintaining the computer system with its various data bases and the communications system has been absorbed by the National Library of Medicine. Beginning with July 1973, a token fee of \$6.00 per hour of computer time will be levied, off-line printouts of bibliographies will cost \$0.10 per page.

The Alaska Health Sciences Information Center, which has become the MEDLINE Center for the State of Alaska, hopes to be able to continue to provide MEDLINE services free of charge to health professionals. If this should become impossible all users will receive adequate prior notice of any intent to impose charges.

AHSIC is supported by the U.S. Public Health Service, The State of Alaska (through the Division of State Libraries), and the Pacific Northwest Regional Health Sciences Library (under grant from the National Library of Medicine). The Washington/Alaska Regional Medical Program provided the special funds needed to train a computer search analyst.

In what way does MEDLINE access influence the services provided by AHSIC? Obviously, search services can be provided much more rapidly. Aided by the computer, a search analyst can do many more searches than is possible under manual search conditions. Backlogs, which quickly used to pile up under the pressure of incoming requests, are less likely to develop. All urgent requests can be processed within 24 hours or less. An important feature, from the users point of view, is the printed bibliography which he receives. Previously the selection of articles had to be made by the library

staff, which was a compromise solution in the cause of expediency. Now the user, if he desires, can be in complete control of selections. He may request to have his bibliography mailed to him as soon as it comes off the computer. In that case he chooses the articles he wants to see. An alternate option is for the library staff to copy a number of representative articles and send these along with the bibliography. The user then requests whatever additional articles he needs.

Another new, expanded MEDLINE service is known under the tongue twister SDILINE (Selected Dissemination of Information on-Line). Anyone who spends much time scanning journal contents in an effort to keep on top of current developments, might well consider turning this job over to SDILINE! To scan, say, fifty journals faithfully each month would appear to be somewhat of a task, not to mention the question of their availability. The computer, on the other hand, thinks nothing of regularly assimilating the contents of 22,000 journals! Each new monthly input can be requested on an automatic basis. For instance, a user would merely need to describe his special area or areas of interest (once!), sit back, and let the computer bring him a fresh bibliography in these fields every month. AHSIC would follow up with any desired articles. It is worth noting that material available through SDILINE (only) contains the entire MEDLARS file, not only the 1200 journals which make up the MEDLINE data base.

The MEDLINE project is still in a developmental stage and new modifications continue to be added. However, the entire program has but one exclusive purpose, to improve information services for members of the health professions. So, why not let MEDLINE help you? If you have a medical problem MEDLINE can find the answers! If you wish to receive monthly bibliographies on specific topics, SDILINE will get them for you! To obtain either service simply drop us a note or use your telephone!

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EX. 170

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TREATMENT OF EXTERNAL ROOT RESORPTION FOLLOWING AVULSION AND REIMPLANTATION OF A MAXILLARY CENTRAL INCISOR

Blake McKinley, D.D.S.

The treatment of an avulsed tooth that is relatively undamaged is to replace the tooth in its alveolar socket as soon as possible, without significant washing and scrubbing, stabilizing the tooth in place, and finally as time permits, begin endodontic therapy.*^{1,2,3}

In October 1971 a fourteen year old boy presented himself at the office with tooth No. 8 in his hand. He informed me that his sister had struck him with a foxtail brush and knocked the tooth out of his mouth. The crown and root were not fractured.

Adequate anesthesia was achieved from second bicuspid to second bicuspid with 2% xylocaine and epinephrine 1:100,000. The tooth was replaced in the socket without any further preparation, and a short arch bar was wired to place to stabilize the tooth. The patient was placed on a five day regimen of Penicillin 250 mg. q.i.d and a mild sedative for pain.

One week post operative saw the wires tight but oral hygiene poor. He was given disclosing tablets and instructions on how to clean around the wires.

In two weeks the healing was good, the tooth still slightly mobile. At sixty days post injury, the arch bars were removed and a periapical xray taken. Internal and external resorption were evident. (Film 1) An endodontist was consulted for the treatment of the internal and external resorption. Following his instructions, the root canal was instrumented and the canal was treated with a paste of calcium hydroxide and camphorated parachlorophenol. This is the treatment normally used to close open apices.*⁵

Ten months later, (Film 2) the canal was again treated with a paste of calcium hydroxide and camphorated parachlorophenol. In three more months the root canal was filled (Film 3) using a large (size 100) gutta percha point cemented with Grossman's cement with lateral condensation. Presently it appears that the resorption has stopped or subsided.



Film 1

A few things considered to reduce the incidence of resorption are as follows:

1. Keep the tooth moist while in transit to the dental office, or have parents reimplant the tooth immediately.
2. Initiate endodontic therapy two weeks following rather than four weeks.

The prognosis for reimplanted teeth is often reported to be less than five to ten years. Yet no present studies give the clinician information which would be helpful in forecasting how successful a specific reimplantation will be. There appears to be clinical evidence to support initiation of calcium hydroxide and camphorated parachlorophenol root



Film 2

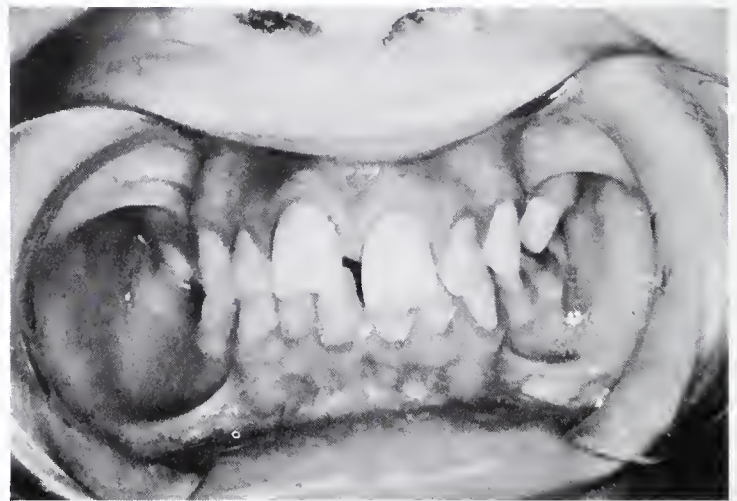


Film 3

end induction paste in reimplantation cases where early resorption threatens tooth retention.

BIBLIOGRAPHY

1. Downson, J., and Graber, F.N.: *A Chairside Manual of Endodontics*. The C.V. Mosby Company, 1967. pp. 116-120.
2. Ingle, Text. *Endodontics, Chapter 16*. The C.V. Mosby Co. pp. 596-602.
3. Lenstrup, K., and Skuller, V.: A Follow Up Study of Teeth Replanted After Accidental Loss. *Acta Odont. Scand.* 17:503, 1959.
4. McGraw, James C. DDS. *Personal Communication*, Department of Endodontics, University of Washington, School of Dentistry, Seattle, Washington.
5. Steiner, J.C., et. al.: Inducing Root End Closure of Non-Vital Permanent Teeth. *Journal of Dentistry for Children*, 35:47, 1968.



Note: The 2x2 is of the tooth after the root canal was completed. The tooth treated is the right central incisor.

PRESIDENT'S PAGE

Joseph K. Johnson, M.D.



Joseph Johnson, M.D.

Looking back on the past year as President of Alaska State Medical Association, I am suddenly aware of the many crises which we have faced. Not only has the Alaska State Medical Association experienced a severe financial crisis, but the State of Alaska is similarly faced with the financial difficulties resulting from failure of materialization of revenues based on construction of the Alaska Pipeline. At the present time it looks like our Association is going to be able to weather the crisis and emerge even stronger next year. Part of our difficulties, of course, were brought on by failure of the Professional Business Bureau to yield a profit as had been predicted at the time of its conception. The resulting losses, not only from the Professional Business Bureau, but from unfortunate developments with projects which the Association has undertaken and worked very hard at left us with a serious deficit at the beginning of 1973.

At the January Council meeting, the advice of Mr. Mike Riley, our AMA Field Representative, was sought, and he strongly urged a special assessment. Distasteful as this special assessment was, it was pointed out that dues increases had not been made in recent years despite the fact that most other State Medical Associations had increased their dues substantially, and the special assessment actually does little more than bring us in line with other State Medical Associations' dues increases over the past two or three years. Inevitably, notice of the assessment brought numerous letters of protest from the members,

which we have attempted to answer to the best of our ability. At the January Council Meeting a special membership committee under the very able chairmanship of Dr. Carolyn V. Brown was appointed, and I am delighted to say that this committee has functioned vigorously and, I believe, most effectively.

Prior to his resignation as our Executive Secretary, Mr. Bob Ogden had prepared a list of benefits and services to which members of the ASMA are entitled. This list also includes a number of activities which yield indirect benefits and hopefully will yield considerable future benefits to our membership. I think that it would be worthwhile to review these services and activities since many of our members are probably not aware of the full extent of ASMA efforts on your behalf. As you can see from this rather comprehensive list, ASMA dues (and the special assessment) are being put to excellent use, and it is our hope that the scope of our activities will continue to expand in the future.

SERVICES AND ACTIVITIES OF THE ASMA EXECUTIVE OFFICE

- I. **Direct Membership Services:**
 - A. **Physician Placement Service:** Physicians within and out of Alaska are informed of practice opportunities in the state, licensure requirements, etc.
 - B. **Continued contact with professional liability insurance carriers** to insure professional liability insurance is available and premiums are standardized.
 - C. **Information Center:**
 1. Information supplied on group insurance programs available through the AMA.
 2. Out-of-state physician addresses and specialties are supplied for patient referral.
 3. Requests for Alaska Statute requirements in medical practice are fulfilled.
 4. Requests for physicians, third parties, and patient information on physicians' fees is supplied.
 - D. **Referral Service:** A referral service is provided patients who call the ASMA office asking for a physician for a particular problem — averaging 5 or 6 calls per day.
 - E. **Mailing Service:** This service is provided physicians who are beginning practice in

the state. Announcements of their practice are transmitted through the ASMA's mailing list.

- F. **Alaska Medicine:** The ASMA office provides business management and distribution of Alaska Medicine.

II. THIRD PARTY LIAISON:

- A. The ASMA's Executive Secretary is in regular contact with third party payees to maintain up to date physician fee payments and contract negotiations; i.e.
1. Medicaid
 2. Medicare
 3. Private Insurance Carrier
 4. Office of Vocational Rehabilitation
 5. Veterans Administration
 6. Workmen's Compensation
 7. United States Public Health Service

III. ORGANIZATIONAL ACTIVITIES:

- A. **Council:** A 20 member Board of Directors representing each of the six local medical societies meets biannually to approve or disapprove the work of the numerous committees, officers, and Executive Secretary of the Association.
- B. **Executive Committee:** Meets monthly to approve or disapprove standing committee and special committee activities in the interim between Council meetings. All activities of the Executive Committee are reported to the Council.
- C. **Standing Committee Activities:**
1. **Legislative Committee:** This committee meets every Saturday morning for two hours prior to and during the legislative session. The following became law because of the activities of the ASMA Legislative Committee. All Topics were introduced through legislators on behalf of the ASMA.
 - a. Professional Corporations Statutes
 - b. Good Samaritan Law
 - c. Revision of the Medical Licensure Statutes
 - d. Statutes recognizing physicians assistants
 - e. Labeling and drug substitution law
 - f. Revision of medical requirements for marriage
 - g. Protection for runaway minors
 - h. Provision of bike, footpaths, and trails along highways and streets
 - i. Revenue sharing to support hospitals
 - j. Statute regarding malpractice actions (repeal of res ipsa loquitor precedent)

The Legislative Committee also has been effective in opposing unsupportable legislation.

2. **Education Committee:** This committee has been very active and has proposed a number of positive programs.
 - a. The committee was the first group in Alaska to submit a plan for the development of an Area Health Education Center.
 - b. The committee, especially its chairman, has been active advisors to the WAMI program (regionalization of the University of Washington Medical School to the University of Alaska).
 - c. Actively involved in the monitoring of the Patient Care Appraisal project in the state of Washington. Developed a small Patient Care Appraisal project in Fairbanks as a demonstration.
 - d. Currently studying postgraduate education requirements of other states and the merits of recertification for licensure and medical association membership.
3. **Future Medical Systems Committee:**
 - a. The committee studied and proposed a planning grant to look at health maintenance organizations and their development in Alaska.
 - b. Proposed an All-Alaska (nonsegregated) health delivery system as part of the Arctic Health Research Center's study of the effect of the Native Land Claims on Alaska Native Health. (This report was published in the October, 1972, issue of Alaska Medicine.)
 - c. Developed a health delivery system demonstration project that was funded by the state of Alaska.
4. **Convention Committee:** This committee plans the ASMA's annual meeting, and for the past two years has planned and administrated the Alaska Health Congress which is composed of meetings of the following organizations:
 - Alaska State Medical Association
 - Alaska State Hospital Association
 - Alaska Nurses Association

American Association of
Medical Assistants, Alaska
Chapter

American Public Health
Association, Alaska Chapter

Alaska Pharmaceutical
Association

The Health Congress is to be held in
Fairbanks this year — June 6,7,8,
1973.

5. **Constitution and By-Laws Committee:** Continued updating of ASMA's by-laws.
6. **Joint Practice Committee:** A new committee this year. Its purpose is to form a liaison with the Alaska Nurses Association to deal with medical practice problems between nurses and physicians.
7. **Medical Audit Committee:** A new committee which has done medical audits at the Valley Hospital in Palmer and the Cordova General Hospital in Cordova. These audits were performed to acquire Medicare certification and Joint Commission accreditation.
8. **Quackery Committee:**
 - a. For two years this committee has proposed numerous pieces of legislation to control or eradicate chiropractors.
 - b. Committee has reported numerous quacks to the appropriate authorities which has led to arrests.
9. **Medical Legal Committee:**
 - a. In the recent past this committee spent hours on professional liability insurance problems. Professional liability (malpractice) insurance is readily available and reasonable compared to other states because of the work of this committee. The well known *re ipsa loquitur* precedent was reversed of this committee's work.
 - b. Currently working on a formal liaison with the Alaska Bar Association.
 - c. Currently studying arbitration as a method of settling malpractice cases.
10. **Mental Health Committee:**
 - a. Very active in assisting the development of mental health programs in Alaska. Most recently the committee has been trying to help solve staffing problems at API

and acquire the passage of legislation which would fund community mental health centers.

- b. Committee is currently very involved in establishment of drug treatment programs throughout the state.
11. **Occupational Health Committee:**
 - a. The committee has met with the medical directors of the companies in the Alyeska Pipeline Corporation as well as State Department of Health and Social Services and Department of Labor personnel to assist in the planning of health delivery along the proposed pipeline route.
 12. **Bush Medicine Committee:**
 - a. This committee has been very active in the planning of health services in the Bush; i.e. liaison with the U.S. Public Health Service, State of Alaska, etc.
 - b. The committee was responsible for the formation of the Alaska Health Manpower Corporation which is dealing with health manpower needs of the state. The Corporation is staffed by a physician expert in health manpower development.
 - c. Primarily responsible for the use of physician assistants in Alaska and was instrumental in acquiring passage of the physician assistant legislation.
 - d. Has worked closely with the State Comprehensive Health Planning Council in their plans for the development of Bush health delivery.
 13. **Public Health Committee:** This committee has become an active committee this year and, so far, has dealt with and established ASMA positions on the following topics.
 1. State regulations pertaining to reportable diseases
 2. Telephonic reporting of reportable diseases
 3. Payment to private physicians for the treating of indigents with venereal disease

One of the main activities of your Executive Committee has been negotiation with the Alaska State Department of Health and Social Services on the Medicaid issue. We have made two trips to Juneau to meet with various legislative committees and with representatives of the Department of Health and Social Services on the Medicaid

question. These meetings were to follow up the special meeting in January which was held in Anchorage for the purpose of resolving major problems between the department and members of the Alaska State Medical Association. We believe that many worthwhile improvements in the administration of the Medicaid Program came out of the meetings. We are represented on the permanent Medical Care Advisory Committee for Medicaid and will continue to serve in a liaison capacity. We hope in this way to iron out problems that may arise in the future administration of the Medicaid Program.

With the passage of HR-1 and the controversial Bennett Amendment by Congress, the Social Security programs have been considerably expanded, particularly as related to Medicare and Medicaid. The ASMA has been negotiating actively with the Department of Health and Social Services to provide an active role in organizing and administering a professional standards review organization for Alaska. At the same time the American Medical Association Task Forces on PSRO are actively working with officials of the Department of HEW and the Social Security Administration to standardize and develop the PSRO concept in a manner which will be acceptable to the medical profession in the United States. We have been told that the AMA expects to tailor the PSRO program for different geographical areas and different states. We have also been told that AMA advisors will be coming to Alaska to assist in the joint development of a PSRO by the ASMA and the Department of Health and Social Services. According to law, certain basic steps in the formation of a PSRO for each state must be completed by January 1, 1974. We are confident that this will be accomplished in Alaska with maximum representation in the organization by the Alaska State Medical Association.

As President of the Alaska State Medical Association, I frequently receive correspondence from Presidents of other State Medical Associations as well as from the AMA regarding the relationship of our State Medical Association with the State Department of Health and Social Services. There are a few states where the State Medical Association enjoys a much more definitive

role in the State Department of Health and Welfare or Social Service. Alabama, for example, has a State Department of Health jointly administered by a Commissioner and by a Board composed of officials of the State Medical Association. In this state the Medicaid and Medicare Programs are administered jointly by the Commissioner and the State Medical Association, and this close working together has eliminated many problems which have been experienced in most other states. Such a merger of the Alaska State Department of Health and Social Services and the Alaska State Medical Association is not only feasible but highly desirable. Under the Alaska Constitution the Department could be administered by a Section 26 Board appointed by the Governor from members of the medical profession who would share administrative responsibilities with the Commissioner.

I have discussed the possibility of forming such a Section 26 Board with Representative Milo Fritz and other legislators, and research is currently in progress on the feasibility of re-organizing the Department in this manner. Naturally, a change of this magnitude requires a good deal of study and development. I feel very strongly that it has merit and if it proves feasible, I will strongly support it. It has certainly become clear in recent months that establishing a close working relationship between the organization representing the physicians of Alaska and the State Department of Health and Social Services can eliminate misunderstandings and smooth out differences before they actually become a serious problem. I hope by the time of the meeting of the House of Delegates at the annual convention in June to have a resolution prepared in support of this concept.

The program for the second Alaska Health Congress has gone to the printers and you will have received your copy by the time this issue of Alaska Medicine has been published. We believe that this second Alaska Health Congress will be even more successful than the first which was held in Anchorage last year. It will be the responsibility of the House of Delegates to select a replacement for Mr. Ogden, our Executive Secretary, at this meeting. It is important that you be present to express your views.

COMMISSIONER'S PAGE

Frederick McGinnis

Commissioner

Department of Health and Social Services

Appreciation again is expressed to the Alaska Medical Association for this opportunity to share some of the activities and expectations of the Department of Health and Social Services with members of the health care professions.

Following the close of the legislative session, much of the work of the Department has been concerned with the fiscal analysis of legislative acts. Therefore, I would like to comment on the program impact of the FY 1974 budget, both at the State and Federal level.

The Department budget, as passed for next year, will require constant expenditure review by program managers. In a "hold-the-line" year, there is virtually no provision made for new programs, with the exception of the nutritional program under the Office of Aging, and other programs will be continued at "maintenance" levels. Below is a comparison of program funding for FY '73 and FY '74.



Frederick McGinnis

DEPARTMENT OF HEALTH AND SOCIAL SERVICES

FY 1974 — 1973 Budget

Budget Request Unit	FY 1974 Authorized	FY 1973 Authorized
SOCIAL SERVICES (In Thousands)		
Assistance Payments	16,550.0	15,741.0
Program Services	4,055.5	3,776.4
Alcantra Youth Camp	500.1	500.1
Social Services	1,060.8	2,159.3
Food Stamps	925.0	528.1
Office of Aging	949.4	219.0
Pioneers' Homes	2,455.0	2,394.2
Alcoholism	1,995.4	1,718.3
Drug Abuse (Addictions)	284.2	370.0
WIN — AFDC	962.5	1,094.1
PUBLIC HEALTH (In Thousands)		
Nursing		
Rural Nursing	980.9	918.0
General Nursing	735.7	684.1
Home Health Service	21.0	22.1
Tuberculosis Control	500.0	520.7
Community Health	294.8	280.6
Environmental Health	668.8	678.4
Child & Family Health Services		
Family Planning	223.2	130.3
Maternal and Infant Care	209.7	107.5
Crippled Children's Services	672.7	620.1
Communicative Disorders	233.9	177.6

	FY 1974 Authorized	FY 1973 Authorized
Child Study Center	100.1	100.8
Impairments Registry	30.0	29.7
Laboratories	683.4	589.7
Health program support	68.4	
General Health Education		53.8
Grants to GAAB Health Departments	500.0	500.0
Medical Social	26.0	24.5
MENTAL HEALTH (In Thousands)		
Alaska Psychiatric Institute	3,778.8	3,751.6
Harborview Memorial Hospital	2,675.0	2,581.2
Institutional (Contract) Services	347.5	448.1
State Operated Mental Health Centers		
Southeast Regional Center	144.3	143.2
Southcentral Regional Center	155.8	158.2
Northern Regional Clinic	170.1	170.7
Community Mental Health Centers	183.4	138.2
MEDICAL ASSISTANCE (In Thousands)		
Medicaid	6,936.6	6,424.8
General Relief Medical	2,207.6	2,462.0
COMPREHENSIVE HEALTH PLANNING (In Thousands)		
CHP and Facilities Development	143.2	142.5
Construction and Licensing	83.1	82.9
Medicare Certification	123.6	115.5

	FY 1974	FY 1973
	Authorized	Authorized

PUBLIC PROTECTION
(In Thousands)

Emergency Medical Services	47.9	46.4
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ADMINISTRATION OF JUSTICE
(In Thousands)

Violent Crimes Compensation Board	99.8	107.5
Confinement — Adult	4,938.8	3,743.9
Confinement — Juvenile	2,284.7	2,275.5
Rehabilitation — Adult	1,216.7	699.7
Rehabilitation — Juvenile	529.8	533.4
Probation & Parole — First District	327.5	299.6
Probation & Parole — Second District	70.9	85.5
Probation & Parole — Third District	567.2	545.0
Probation & Parole — Fourth District	281.5	275.0
Parole Board	66.8	52.1

TOTAL DEPARTMENT BUDGET (Including Administrative Support)	69,311.7	64,238.3
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One bright spot in the budget, though it does not impact directly on this Department, is the restoration of the funds for the School of Nursing at Alaska Methodist University, which has been virtually eliminated at one point in the budget process. The Department is very interested in this educational program which is considered vital to the profession of nursing and to the delivery of health care in Alaska. The final amount allocated to this program is \$175,000.

However, the fiscal outlook at the Federal level is not at all encouraging at this juncture. It appears there is every chance that Hill Burton funds, Child Development funds, and continuation of the Regional Medical Program are all in jeopardy. If Federal funds are not forthcoming, the impact on health services in Alaska will be severe.

The \$1,200,000 for Alaska under the Hill Burton Act was not received this year due to the President's veto of the HEW appropriation bill. A bill renewing the Hill Burton Act has passed the Senate and is now being considered by the House of Representatives. However, even if passed through Congress, the bill faces another veto by the President. The same fate may befall the Child

Development and Regional Medical Programs. Also at stake are local bonding issues for hospital construction which are contingent on receipt of Hill Burton funds.

As many of you are already aware, the Regional Medical Program affects Alaska's capability to treat persons afflicted with heart disease, strokes, and cancer. (For example, this program made possible the acquisition of cobalt radiation equipment for the Providence Hospital.)

An additional \$100,000 for treatment of children with Developmental Disabilities may also be lost through lack of appropriate Federal action.

During the legislative session, the Alaska Legislature enacted a bill which more clearly delineates the nature and purpose of Alaska's Comprehensive Health Planning Program in a manner consistent with the Federal mandate embodied in P.O. 89-749. The term "comprehensive" as applied to State health planning is envisioned in the Federal mandate, and similarly reflected in the legislation, to mean that such planning will be concerned with the entire population and characterized by a comprehensive scope, an integrated nature and a long range viewpoint.

The 1973 State CHP Act identifies the functions and duties of the Comprehensive Health Advisory Council, which, through its recommendations, seeks to improve planning for, and delivery of, health care services. In compliance with the Federal mandate, the Act defines Council membership, which is set at 24 voting members, and provides that a majority of the voting members shall be consumer representatives. The Act reaffirms that the Alaska Department of Health and Social Services is the single State agency designated responsibility for administration of comprehensive health planning functions in Alaska. Within the Department, the Office of Comprehensive Health Planning is delegated responsibility for carrying out CHP activities under Sec. 314 (a) of P.O. 89-749.

Legislation was also enacted to provide coverage under the Medical Program for care of eligible persons in intermediate care facilities.

NORTHERN HIGHLIGHTS - 6

The decline of tuberculosis, or whatever happened to the Scourge?

Robert Fortune, M.D.

One of the more hallowed cliches in Alaskan medical writings is the "Scourge." The term was apparently introduced by Dr. H.E. Hasseltine, the Public Health Service Officer who made a survey of health conditions in Alaska in 1910¹, but it was made famous by the Parran Report², that hard-hitting survey prepared for the Interior Department in 1954 by a team from the University of Pittsburgh. The term, of course, describes the great Alaskan tuberculosis epidemic, which at its peak was unparalleled anywhere in the world.

Every now and again we Alaskan doctors should be reminded that one of the greatest success stories in the history of public health occurred right beneath our professional noses and within the memory of many. The facts are briefly set forth in the following articles by Johnson, Kaplan *et al* and Comstock *et al* abstracted in this issue in Northern Highlights. (pp 82-83). In contrast, a forth article, by Grzybowski *et al*, tells the grim story of the tuberculosis epidemic now raging in the Canadian Arctic. The facts on incidence, prevalence, and age and sex distribution, as set forth in this latter article, are very reminiscent of the situation in Alaska a short 20 years ago. The prime difference between the tuberculosis program in the two countries seems to be the extent to which the "magic bullet," isoniazid, has been used.

Someone with a little time on his hands should calculate the number of INH tablets which have been used in Alaska since 1954. During the now famous controlled trial and the community prophylaxis studies, for example, literally barrels of the drug passed through the pharmacy at the Bethel Hospital en route to the villages. The program, as the record shows, was extraordinarily successful. The side effects of the drug were minimal, despite the bad press the drug has had recently, and the program costs were only moderate, especially in light of the results obtained.

Whatever the exact role INH played in this effort, the program as a whole was successful: — successful perhaps beyond anyone's expectations. Tuberculosis is still very much with us, of course, since there is still a large reservoir of arrested cases and positive tuberculin reactors who are at risk for active disease, but the important point is that the epidemic is over. Tuberculosis deaths are now a rarity in Alaska, where two short decades ago 0.6% of the Native population died from the disease each year. When less than 20 years ago more than a thousand Alaska Natives were hospitalized for

tuberculosis, recently the Alaska Native Medical Center closed its only tuberculosis ward and integrated the few tuberculosis patients remaining into the Internal Medicine Service.

A couple of other aspects of the anti-tuberculosis campaign deserve emphasis. First, it demonstrated how totally disparate groups and individuals could effectively team up to accomplish a job. The anti-tuberculosis effort was a truly joint endeavor of the Arctic Health Research Center, the Alaska Department of Health, the Tuberculosis Program of the Communicable Disease Center and the Alaska Native Health Service. Each agency did its part well. But needless to say, the success of the program depended most of all on the Alaska Native people, who as patients, as leaders, and as communities of individuals gave their wholehearted support to the work. The disease had touched the life of virtually every man, woman and child in Alaska. Those who personally escaped the Scourge had a wife, a husband, a child, or a parent struck down or crippled by it. The Alaska Native people had a real stake in the outcome of the program.

Second, the anti-tuberculosis campaign did much to develop the present health care system in the outlying areas of Alaska. It made the people more health conscious and brought them into familiar contact with doctors, nurses, and technicians, who were by a large concerned with many other health problems besides tuberculosis. For all the devastating psychological results of long hospitalization, the experience often helped former patients to smooth the way for others who required medical care in the villages. Perhaps more than anything else, however, the tuberculosis program established the pattern of Community Health Aids as we know them today. The so-called "Chemo Aids," enlisted by AHRC to dispense INH in the villages, are the precursors of the present more elaborately trained Community Health Aides. Some of the current aides, in fact, began as "Chemo Aides" 15 or more years ago. Others are former tuberculosis patients who first learned English during a long hospitalization at Anchorage or Mt. Edgecumbe. It was the tuberculosis program which first began to push health affairs in the villages out of the hands of the school teachers and into the hands of the Native people, where they belonged.

Lest we become complacent, however, we should recall that tuberculosis still smoulders on, flaring up into small outbreaks from time to time here and there, when an old case becomes

reactivated and spreads the organism to others. Constant surveillance is essential, as is prompt diagnosis and adequate drug therapy. The tuberculosis incidence in Alaska Natives was still nearly ten times the rate in non-Natives in 1970. Yet, it is fair to ask, with pride that it happened here in Alaska, "O Scourge, where is thy sting?"

Selected Abstracts on Medicine in the North

TUBERCULOSIS IN ARCTIC POPULATIONS

Johnson, N.W.: Results of 20 years of tuberculosis control in Alaska. *Health Services Reports* 88: 247-254, 1973.

The author briefly reviews in this paper the history of tuberculosis in Alaska and the remarkably successful control efforts that have been carried out in the past two decades. Dr. Johnson is the Medical Director of the PHS Alaska Native Medical Center in Anchorage. He first presented a version of this paper in 1971 at the Second International Symposium on Circumpolar Health at Oulu, Finland.

Skeletal remains dating from before 1000 A.D. have thus far not shown the stigmata of tuberculosis. The best available evidence, in fact, indicates that tuberculosis was probably first introduced into Alaska by Europeans in the 18th century. Once established, it spread through a highly susceptible population living under conditions optimal for disease transmission. By 1950, the disease had reached record incidence and mortality rates among the Native population.

In the mid-1940's, there were 70 hospital beds available for 4,000 known active cases. Over the next 10 years, however, the gloomy picture began to change. Alaska Native Hospitals at Mt. Edgecumbe (1947) and Anchorage (1953) provided some 600 new beds for tuberculosis, and other beds were contracted elsewhere in Alaska and in Washington. Pulmonary surgery was widely employed for difficult cases and BCG was used to a limited extent in some areas.

Isoniazid, however, was the mainstay of treatment and prevention. The initial phase was a program of ambulatory chemotherapy (1954-56) followed by a controlled trial of INH prophylaxis (1957-62) and then community-wide prophylaxis (1963-64). Since 1964 patients at high risk have received INH prophylaxis on an individual basis.

At the present time tuberculosis control in Alaska is based on case-finding through tuberculin testing, X-ray surveys and sputum examinations, the latter facilitated by the widespread use of aerosol nebulizers.

The results of these 20 years of effort have been impressive. The tuberculosis death rate for Alaska Natives has declined from 653/100,000 in 1950 to 0 in 1970. Incidence figures have also shown a remarkable improvement over the years, although the decline in extrapulmonary cases has been less gratifying, for reasons not fully understood.

One of the best lessons to be learned from the tuberculosis experience in Alaska is that excellent program results can be obtained even without significant improvement in housing or socioeconomic conditions.

Kaplan, G.J.; Fraser, R.I.; Comstock, G.W.

Tuberculosis in Alaska, 1970. The continued decline of the tuberculosis epidemic. *Amer. Review of Resp. Disease* 105: 920-926, 1972.

1. Sanitary Conditions in Alaska, including report by H.E. Hasseltine. *Public Health Reports* 26: 631-636, 1911.
2. Parran, T., et al: *Alaska's Health. A Survey Report*, Pittsburgh Graduate School of Public Health, 1954.

This report describes a 1970 tuberculin survey among school children in the Bethel area and relates the findings to previous tuberculin surveys carried out since 1949. These surveys document the dramatic decline of the tuberculosis epidemic in Alaska. The authors are, respectively, with the Arctic Health Research Center, the State Department of Health and Social Services, and the School of Hygiene and Public Health at Johns Hopkins.

The present survey was carried out in 28 villages by nurses of the Alaska Department of Health and Social Services in 1969 and 1970. A total of 3,235 persons up to the age of 14 were tested using 5-TU doses of PPD-S. Indurations of 6 mm or more at 48 hours were classified as positive reactions.

The results were compared by age with those of surveys carried out in 1949-51, 1957, 1960, and 1963-64 in the same part of Alaska. The findings showed a dramatic fall in tuberculin sensitivity. For example, in 7-8 year olds, the percentage of positives steadily declined from 92% in 1949-51 to 2% in 1969-70. Using children under 3 as indicators of current infection rates, the rate declined progressively from 25% in 1949-51 to 8% in 1957, to 1% in 1960 to 1% in 1963-64 to 0% in 1969-70. Non-reactors now experience a very low risk of acquiring tuberculosis infection.

The tuberculosis death rate declined from 653/100,000 in 1950 to 0 in 1970, while incidence declined from 1,854/100,000 to 141/100,000 in 1970. The decline was even sharper in the Bethel Service Unit.

This dramatic decline in the tuberculosis problem may be attributed to intensive case-finding, hospitalization, ambulatory treatment, INH prophylaxis, better education, and a high degree of cooperation among the Native people. It is important, however, not to lose sight of the need for continued surveillance and supervision of active cases and persons who are or become tuberculin reactors.

Comstock, G.W.; Woolpert, S.F.

Preventive treatment of untreated, nonactive tuberculosis in an Eskimo population. *Arch. Environ. Health* 25: 333-337, 1972.

This paper summarizes the outcomes of the INH prophylaxis studies carried out in the Bethel Area by Dr. Comstock and others during the late 1950's and early 1960's. Dr. Comstock is with the Johns Hopkins School of Hygiene and Public Health and Mrs. Woolpert (n'ee Ferebee) is with the Tuberculosis Program of the Center for Disease Control.

The INH projects were conducted cooperatively by the Tuberculosis Program of CDC, the Arctic Health Research Center, the Alaska Department of Health and Welfare, and the Division of Indian Health. A controlled double-blind trial of INH prophylaxis was initiated in 1957-58 among the Eskimos of 30 villages in the Yukon-Kuskokwim delta. Six years later, the entire population was offered INH for one year. In both studies it was estimated that 20% of the population had untreated, non-active tuberculosis (UNT).

It was found that in the six years of the controlled trial, those with UNT who did not receive INH had a cumulative probability of nearly 12.7% of developing active tuberculosis. Those on the INH regimen, however, developed active tuberculosis about 1/3 as often, despite the fact that many took the drug only sporadically. Of those taking INH, the ones who took an estimated less than 40% of the prescribed dose had a reactivation rate of 9.5% after six years, whereas those groups who took 40% or more had a reactivation rate of between 2.8 and 3.6%.

In the community demonstration program many persons received INH for the first time and many others received the drug a second time. After a further six year follow-up, again those with UNT who took the least INH had the highest risk of developing the active disease, about 1% per year. Those who took INH best had the lowest reactivation rate, about 1/10 as high as the other group.

The authors conclude that preventive treatment with INH can yield impressive results at relatively little cost among persons with UNT. They feel it should be a major tool in the control of tuberculosis in groups with problems similar to the former plight of the Alaskan Eskimo.

Grzybowski, S.; Galbraith, J.D.; Styblo, K.; Chan-Yeung, M.; Dorken, E.; Brown, A.

Tuberculosis in Candian Eskimos, *Arch. Environ. Health* 25: 329-332, 1972.

This brief paper describes the dimensions of the tuberculosis problem among the Eskimos of the Canadian Arctic.

The authors are with the University of British Columbia Medical School and with the Canadian Department of National Health and Welfare.

The average annual incidence of tuberculosis among the 14,000 Eskimos of Canada in the period 1967-69 was 1,310/100,000, some 40 times the rate among white Canadians. The highest rate was found in Eskimo women 15-24 years old, where the incidence reached the level of 2,200/100,000.

In the eastern arctic nearly 4%, or 1 out of 25 persons, of this latter group becomes active each year. For the total Eskimo population, it is estimated that in 1970 1.1% have active tuberculosis and another 15.1% have inactive but previously documented active disease.

In a recent study of 2,507 Eskimos in 5 settlements, a review of records for the period 1965-69 documented that 189 developed tuberculosis in the five year period, 140 of them bacteriologically confirmed, for a rate of 1,510/100,000 annually.

These characteristics of tuberculosis in the Canadian Eskimos show that a full-stage epidemic is in progress. The authors state that "a very vigorous antituberculosis campaign" has been conducted by the Canadian Health Services, including BDG vaccination, intensive case-finding, and prolonged hospitalization of active cases. They conclude, "It is hoped that the expanded chemoprophylaxis program now being implemented will help to bring the problem of tuberculosis in Eskimos under control."

Jeanes, C.W.L.; Schaefer, O.; Eidus, L.

Inactivation of isoniazid by Canadian Eskimos and Indians. *Canad. Med. Assoc. J.* 106: 331-335, 1972.

This paper reports a study to determine the phenotype for isoniazid inactivation on a group of Canadian Eskimos and Indians. It also describes a comparison of the results of blood sampling methods with a urine test suitable for mass screening. The authors are with the Canadian Tuberculosis and Respiratory Disease Association, the Charles Camell Hospital in Edmonton, and the Canadian Communicable Disease Center, respectively.

INH was given intramuscularly to 26 Eskimos and 46 Indians from various parts of Canada. Blood samples were drawn at 2 and 4 hours and urine specimens at 2, 4, 6, 8, and 10 hours after drug administration. Free INH was measured in the urine. Of 26 Eskimos, all were found to be rapid inactivators of INH, with a half-life value averaging 78.2 minutes. Only 26 or the 46 Indians (56.5%) were fast inactivators, averaging 84.3 minutes. The slow inactivators averaged 288.4 minutes.

The authors feel that the urine test they describe for INH and its metabolites ("Inactivation Index") ensures a distinct division between slow and fast inactivators and is in agreement with the more cumbersome venipuncture technique.

It is generally felt that rapid acetylation of INH has no effect on the outcome of chemotherapy with daily double or triple regimens of primary antituberculosis drugs, but it may unfavorable influence intermittent therapy. — Robert Fortune, M.D.



ALASKA STATE MEDICAL ASSOCIATION

28TH ANNUAL CONVENTION

TRAVELERS INN
Fairbanks, Alaska

Tuesday, June 5

- 1:00 PM Meeting of the Council Alaska State Medical Association—Rampart Room
- 6:00 PM Informal Cocktail Party
Fairbanks Medical and Surgical Clinic
Joseph K. Johnson, M.D., President
Alaska State Medical Association—Host

- 3:00 PM Business Meeting
Alaska State Medical Association
- 6:00 PM Riverboat Discovery Trip
Cocktails hosted by Fairbanks Med. Assn.
until buffet is served
Buffet and Trip, approximately \$10.00

Wednesday, June 6,

- 8:00 AM Registration—
Gold Room Foyer, Travelers Inn
- 8:30 AM Opening Ceremonies—
East Gold Room, Travelers Inn
J. K. Johnson, M.D.—Moderator
- 9:00 AM Alaska Public Health Assn.
Keynote Speaker—Dr. Margaret Dolan
President, American Public Health Association, Professor of Nursing—School of Public Health, University of North Carolina
“Trends in Public Health”
- 9:45 AM Alaska Nurses Association—
Keynote Speaker, K. Mary Straub, R.N., Ed.D.
“The Nurse’s Role in Delivery of Health Care”
- 10:15 AM Coffee Break—Visit exhibits
- 10:45 AM American Association Medical Assistants
Adrienne Lawrence—
National Parliamentarian, A.A.M.A.
- 11:15 AM Wayne Myers, M.D.
Experiments in Medical Audit in Alaska
- 11:45 AM Mr. Michael Riley
Alaskan Field Representative to the American Medical Assn. AMA 1973
- 12:15 to
2:00 PM Buffet Luncheon
- 2:00 PM Panel discussions—
East Gold Room, Travelers Inn
(All participants invited)
Michael Riley, A.M.A. and A.S.M.A.
Representative
K. Mary Straub, R.N., Ed.D.—A.N.A.
Representative
Dr. Margaret Dolan—A.P.H.A.
Representative
Adrienne Lawrence—A.A.M.A.
Representative
Harry M. Malm—Alaska Hospital Assn.,
Representative
Wayne Myers, M.D.

Thursday, June 7, 1973

INTERNAL MEDICINE SCIENTIFIC SESSION

AM Session: GASTROENTEROLOGY

Dr. Gary Walkup, Moderator

- 8:30 AM An Approach to the Gastrointestinal Bleeder — Dr. Pope
- 8:45 AM Diagnostic Advances in Gastroenterology
State of the Art — Dr. Buchanan
- 9:15 AM Inflammatory Bowel Disease — Dr. Pope
- 9:30 AM PANEL—
Dr. Pope
Dr. Buchanan
Dr. Fuzzard, Radiologist, Fairbanks
Dr. Walkup, Moderator
- 10:00 to
10:30 AM Visit Exhibits
- 10:30 AM Infectious Hepatitis
(Do Australians really have antibodies) —
Dr. Buchanan
- 10:45 AM Hiatal Hernia and Esophageal Reflux
(Disease or nuisance) — Dr. Pope
- 11:30 AM PANEL—
Dr. Pope
Dr. Buchanan
Dr. Fuzzard
Dr. Walkup, Moderator
- 12:00 PM Lunch

Thursday, June 7—Afternoon

ENDOCRINOLOGY AND METABOLISM

Dr. Straatsma, Moderator

- 1:30 to
2:00 PM Advances in Thyroid Diagnosis—State of
the Art. — Dr. Metz
- 2:45 PM PANEL—
Dr. Metz

Dr. Hazzard
New Diets in Diabetes
New Insulins
Oral Hypoglycemic Agents: Boon or Bust

3:15 PM Visit Exhibits

3:30 PM Lipids and Evaluation of Lipid Abnormalities—State of the Art (or Fredrickson's Folly) — Dr. Hazzard

4:00 PM Business Meeting — Alaska State Medical Assn.

7:00 PM A.A.G.P. Banquet

A.S.M.A. June 7, 1973 9:00 AM

SURGICAL PROGRAM

8:30 AM Coffee and Assembly

9:00 AM Panel—The Acute Abdomen
Moderator—George Murphy, M.D., Fairbanks or Joseph Johnson, M.D.

9:00- 9:30 Emergencies of the Upper Abdomen — Joseph Johnson, M.D., Fairbanks

9:30-10:00 Emergencies of the Lower Abdomen — Dr. Ancel Earp, Fairbanks

10:00-10:30 Coffee Break

10:30-11:00 Pelvic Visceral Trauma — Dr. Paul Sayre, Anchorage

11:00-11:30 Vascular Disaster in the Crushed Pelvis—Dr. Mike Hein, Anchorage

11:30-12:00 Antibiotics in Abdominal Emergencies — E. Jack Benner, M.D.

2:00- 2:20 Alastair Chalmers — Anchorage. Trauma to the Upper Urinary Tract

2:30- 2:50 John Wrigley, M.D. — Trauma to Lower Urinary Tract

BREAK Visit Exhibits

3:30- 3:45 Urological Problems in the Acute Abdomen — Dr. Chalmers

4:00- 4:15 Acute Scrotal Problems — Dr. Wrigley

4:00 PM Business Meeting, Alaska State Medical Association

Friday, June 8th, 1973

AGENDA, PEDIATRIC SECTION ALASKA HEALTH CONGRESS

9:00- 9:45 Dr. William Robertson, Prof. of Pediatrics, Children's Orthopedic Hospital, Seattle: "Poisoning in Children"

9:45-10:30 Dr. William G. Edwards. Orthopedic Surgeon, Anchorage: "Correctable Disorders of the Lower Extremities in Infants"

10:30-11:00 **BREAK**—Visit Exhibits

11:30-11:50 Dr. John Tower, Pediatrician, Anchorage: "Allergy in Alaskan Pediatric Practice"

12:00- 1:30 **LUNCH**

1:30- 2:00 Dr. Dion Roberts, Medical Director, Alaska Newborn Care Project, Anchorage: "Our First Year's Experience"

2:00- 2:45 Dr. Sydney Segal, Professor of Pediatrics, University of British Columbia, Vancouver: "Transferring the Critically Ill Newborn"

2:45- 3:10 Dr. Tom Porter, Pediatrician, Alaska Area Native Medical Center: "Training Programs for Nurses in Newborn Intensive Care"

3:10- 3:30 **PANEL**

4:00 PM Business Meeting Alaska State Medical Association

7:00 PM Cocktails — Gold Room. Host Fairbanks Medical Association

8:00 PM Annual Joint Banquet
Carl A. Hoffman, M.D., President American Medical Association, Guest Speaker
Alaska State Medical Association
Alaska Nurses Association
American Association Medical Assistants—Alaska Chapter
Alaska State Hospital Association
Alaska Pharmaceutical Association

Friday, June 8, 1973—OB-GYN

MORNING SESSION

CONTRACEPTION AND ABORTION

J. A. Worrall, M.D., Moderator

8:00 George Rosemond, M.D.: "Carcinoma of Esophagus"

8:30 Ray Giles, M.D., Anchorage, Alaska: "Modern Methods of Sterilization"

8:50 Lawrence Dunlap, M.D., Fairbanks, Alaska: "Intrauterine Devices"

9:10 Philip Hardie, M.D., Fairbanks, Alaska: "Abortion"

9:30 John Wrigley, M.D., Anchorage, Alaska: "Vasectomy"

9:50 Coffee — Visit Exhibits

10:30 Herbert Taylor, M.D., Professor of Pathology, St. Louis University School of Medicine: "Oral Contraception"

11:00-12:00 **PANEL DISCUSSION WITH QUESTIONS FROM FLOOR**

12:00- 2:00 Lunch

AFTERNOON SESSION

Lawrence Dunlap, M.D., Moderator

2:00 Charles Wallner, M.D., Anchorage, Alaska: "The Acute Surgical Pelvis"

2:20 Carl Nichols, M.D., Bassett Army Hospital, Fort Wainwright, Alaska: "The Surgical Abdomen in Pregnancy"

ALASKA STATE DENTAL SOCIETY '73 CONVENTION

A. D. S. PROGRAM

SATURDAY, JUNE 2

1:00 - 6:00 P.M.	Registration — Hotel — Mt. Alyeska
1:00 - ?	Executive Committee Meeting
6:00 - 8:00 P.M.	Supper
8:00 - ??? P.M.	Opening Session Business Meeting

SUNDAY, JUNE 3

8:00 - 10:00 A.M.	Breakfast Clinic — Dr. Wm. Fox; Pre-Medication Committee Meetings
10:00 - 12:00 Noon	Open Lunch & Exhibits
12:00 - 2:00 P.M.	Clinic — Dr. Ray Contino; Cast Gold Crown & Bridge
2:00 - 5:00 P.M.	Dinner Dance, Day Lodge - informal
7:00 - ??? P.M.	

MONDAY, JUNE 4

7:30 - 9:00 A.M.	Open Breakfast/ASDC Breakfast
9:00 - 12:00 Noon	Clinic — Dr. Ray Contino
12:00 - 2:00 P.M.	Open Lunch/Oregon Alumni Luncheon; Dean Louis Terkla
2:00 - 4:00 P.M.	Business Meeting
4:00 - 6:00 P.M.	Exhibits / A G D Meeting/Alaska State Society Orthodontists Meeting
7:00 - 8:00 P.M.	Cocktails
8:00 - ?? P.M.	President's Banquet

TUESDAY, JUNE 5

8:00 - 11:00 A.M.	Open Breakfast
11:00 - 12:00 Noon	Clinic — Dr. Ray Contino
12:00 - 2:00 P.M.	Table Clinics/Exhibits
2:00 - ?? P.M.	Past President's Luncheon
	Final Meeting

WIVES PROGRAM

SATURDAY, JUNE 2

1:00 - 6:00 P.M.	Registration
------------------	--------------

SUNDAY, JUNE 3

9:30 A.M. - 4:00 P.M.	Trip to Portage Glacier, hike, sack lunch, train to Whittier and back. Children welcome, warm clothes and camera
7:00 - ?? P.M.	Dinner Dance, Day Lodge-informal

MONDAY, JUNE 4

12:00 Noon	Luncheon — Soapstone carving demonstration; Mary Annis Regat and Jacques Regat
------------	---

TUESDAY, JUNE 5

12:00 Noon - 2:00 P.M.	Past President's Luncheon
------------------------	------------------------------

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Summer — Seward Peninsula
J. Kottra, M.D.

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NOISE INDUCED HEARING LOSS IN SALMON CANNERY WORKERS IN SOUTHEAST ALASKA

David S. Palmer

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Mt. Edgecumbe, Alaska

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Regional Audiology Supervisor, Communicative Disorders Program,
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THE RELATIONSHIP BETWEEN ENVIRONMENTAL NOISE AND HEARING LOSS IN SALMON CANNERY WORKERS IN SOUTHEAST ALASKA

INTRODUCTION

One of the most prominent industries in Southeast Alaska is the processing of seafoods, and particularly salmon processing and canning. As with most industries utilizing heavy machinery, noise exposure is one of the occupational hazards that one would expect to find in salmon canneries. To "test" this hypothesis, a survey was undertaken in two canneries in Southeast Alaska to evaluate the relationship between environmental noise levels and hearing loss among cannery employees. This investigation was conducted by the Office of Environmental Health, Mt. Edgecumbe Service Unit, Alaska Area Native Health Service, U.S. Public Health Service, and by the Communicative Disorders Program, Department of Health and Social Services, State of Alaska.

METHODS

Environmental sound level measurements were taken at two Southeast Alaska salmon canneries which were in operation during the 1972 canning season. These measurements were taken at each of the eight operations on the canning line as the line was functioning fully. Each measurement was taken from the position normally occupied by

workers for that particular operation, and was made using the A weighting network (slow) of a Bruel and Kjaer Precision Sound Level Meter, Type 2203, equipped with a condenser microphone, cartridge type 4144.

The auditory workup (hearing test) was accomplished by an audiologist on eight female workers approximately four weeks prior to the start of the canning season and three weeks following the close of the season. None of the workers used ear protection equipment at any time during the season or previous seasons, even though such equipment was available. Each of the eight worked in the same cannery for the entire season. The original hearing test was accompanied by an otological evaluation, administered by a physician, and a series of impedance measurements for the purpose of determining middle ear disease and/or conductive hearing problems in the group. These tests were conducted under field conditions using a Maico Audiometer, Model 2A, and a Madsen Impedance Meter, Model ZO72.

RESULTS AND DISCUSSION

The sound level readings for each cannery are given in Table I and are listed stepwise according to each operational step in the canning procedure. As mentioned previously, the sound levels (as recorded in Table I) represent the intensity of noise to which a worker is exposed as she is working at each of the eight operations. The highest sound level readings are the final two steps which are operations that constitute the cans from their original packaged form to that used in the canning operations. These two steps are somewhat isolated in location from the first six steps which are located close enough to each that the machinery-produced noises of one operation influences the sound level readings measured at another operation.

ACKNOWLEDGEMENTS

The assistance of Robert McGrath, M.D., the management of the two canneries surveyed, and William Goodman, M.P.H., Occupational Hygienist, Alaska State Department of Health and Social Services is gratefully acknowledged.

TABLE I NOISE LEVELS DURING OPERATION OF SALMON CANNERY (in dB(A) SLOW)			
NAME OF OPERATION	APPROXIMATE NUMBER OF WORKERS	CANNERY 1	CANNERY 2
"IRON CHINK"	2	93.5	94.8
SLIMMING TABLE	20	88.0	82.5
CUTTING & FILLING	4	92.5	92.0
PATCHING TABLE	8	94.0	90.0
CLINCHER (SEALER)	2	96.5	91.0
CAN LOADERS	6	87.5	82.5
REFORMER	1	100.0	97.5
LIDDER	1	97.0	94.5

For comparison purposes, the intensity levels of permissible noise exposure, as opposed to the duration of "safe" exposure, may be examined in Table II. These levels are established by the Occupational Safety and Health Standards of the Williams-Steiger Occupational Safety and Health Act of 1970 (OSHA). It will be noted in comparing the sound level readings of the two canneries with those recommended as "safe" by OSHA that only persons working at the slimming tables and can loaders in these canneries are within the permissible intensity levels for an eight hour working day. The working day of a cannery, however, may vary from less than four to more than 12 depending on the number of fish available for canning.

Hearing thresholds for the eight workers, before and after the canning season, are recorded in Table III along with the results of the otological examination completed prior to the start of the

TABLE II PERMISSIBLE NOISE EXPOSURES OCCUPATIONAL SAFETY AND HEALTH STANDARDS	
SOUND LEVEL dB(A) slow	DURATION PER DAY HOURS
90	8
92	6
95	4
97	3
100	2
102	1.5
105	1
110	0.5
115	0.25 or less

season. The workers are identified by their occupation in the canning process and the number of years they have worked in that occupation.

The average (arithmetic mean) threshold shift, or hearing loss, of each of the eight tested workers is given by frequency in Table IV. These values represent average threshold shift (hearing loss in decibels) for each worker that occurred at each of the measured frequencies. Table IV shows a greater than 1.25 decibel increase in hearing loss occurring from the initial to the final test at each of the frequencies examined except 250 and 8000 Hz. The final hearing test was conducted approximately three weeks following the close of the canning season allowing time for complete recovery from temporary threshold shifts. The

TABLE III PRE- AND POST-SEASON THRESHOLDS OF EIGHT SALMON CANNERY WORKERS													
WORKER NUMBER	BIRTH DATE	OCCUPATION IN CANNERY	YEARS IN OCCUPATION	OTOLOGICAL EXAMINATION PRIOR TO SEASON	YEAR	DATE OF AUDIOLOGICAL TESTING	THRESHOLDS (dB)						
							FREQUENCY (Hz)						
							250	500	1000	2000	3000	4000	8000
1	12-09-44	CUTTING & FILLING	9	Normal	R	5-20-72	20	20	15	15	15	20	15
					R	9-08-72	35	30	25	10	15	15	10
					L	5-20-72	20	15	05	00	15	15	10
					L	9-08-72	15	15	15	10	10	20	20
2	9-07-29	REFORMER	25	Normal	R	5-20-72	10	10	10	10	15	10	15
					R	9-08-72	25	25	15	15	25	15	35
					L	5-20-72	20	15	10	10	15	25	25
					L	9-08-72	25	30	25	20	25	50	20
3	5-23-54	EGG TABLE	1	Normal	R	5-20-72	10	00	00	00	10	10	00
					R	9-08-72	10	20	15	15	10	15	05
					L	5-20-72	15	10	05	00	00	00	10
					L	9-08-72	05	05	05	15	20	15	10
4	10-05-50	SLIMMING TABLE	4	Retracted TM's	R	5-20-72	15	10	10	15	20	20	20
					R	9-08-72	30	25	20	15	15	30	00
					L	5-20-72	20	10	10	15	20	20	20
					L	9-08-72	20	25	15	10	20	30	05
5	3-24-41	SLIMMING TABLE	8	Not Examined	R	5-20-72	30	25	20	20	20	25	20
					R	9-08-72	10	10	15	05	15	10	00
					L	5-20-72	30	25	25	15	15	25	15
					L	9-08-72	15	05	05	05	05	05	10
6	9-27-43	CUTTING & FILLING	10	Normal	R	5-20-72	15	10	15	15	20	20	25
					R	9-08-72	10	10	15	15	15	35	00
					L	5-20-72	15	15	15	15	15	20	00
					L	9-08-72	15	05	05	05	05	30	10
7	11-02-06	"IRON CHINK"	10	L Mobility & Retracted TM	R	5-20-72	20	15	20	10	20	15	50
					R	9-08-72	25	25	20	15	25	30	55
					L	5-20-72	30	15	15	15	30	60	65
					L	9-08-72	30	30	15	15	45	65	75
8	1-19-33	SLIMMING TABLE	17	L Central Perf.	R	5-20-72	10	10	10	10	05	00	10
					R	9-08-72	20	20	15	15	10	25	20
					L	5-20-72	10	10	05	05	15	15	10
					L	9-08-72	05	00	05	05	15	20	05

TABLE 1V AVERAGE THRESHOLD SHIFT OF EIGHT SALMON CANNERY WORKERS IN ONE SEASON	
FREQUENCY (Hz)	THRESHOLD SHIFT (dB)
250	0.31
500	4.10
1000	2.50
2000	1.56
3000	1.56
4000	1.25
6000	9.10
8000	-1.25

final hearing test on this study group may then be considered to represent a permanent threshold shift or hearing loss (Ward, Glorig, Sklar, 1959).

The average threshold shift of 9.1 dB at 6000 Hz is in conformity with other similar studies wherein a decrease in hearing sensitivity as a result of noise exposure first occurs in the range of 3000-6000 Hz (Bell, 1966). This type of hearing loss initially effects clarity of heard speech, especially high-pitched female voices. Next, words containing many consonants, the frequencies of which run as high as 10,000 Hz may be difficult to catch, and finally after many years exposure to noise, general conversation on a one to one basis becomes difficult to hear. The permanent hearing loss caused by prolonged exposure to noise is not amenable to treatment; once a noise-induced hearing loss has been acquired normal hearing cannot be restored. The only prevention of this

type of hearing loss is through educational means. Employees should: (1) be aware of high risk noise areas; (2) wear ear protection in high risk areas; (3) have yearly hearing test.

CONCLUSION

This investigation of occupational noise hazards of two Alaskan salmon canneries was not meant to be an extensive longitudinal study as the smallness of the study group will convey. We were just looking for a general trend in relationship between environmental noise levels and hearing loss. We have found that a permanent hearing loss can occur even during one season of exposure to cannery noise and that the greatest amount of loss occurs at 6000 Hz. Because of the general similarity in age and operation of all Southeast Alaskan canneries, it may be assumed that the noise levels are similar in all canneries throughout Southeast Alaska.

LITERATURE CITED

Bell, A. "Noise on Occupational Hazard and Public Nuisance," World Health Organization. Geneva, Switzerland. 1966.

Riley, E.D.; Sterner, J.H.; Fassett, D.W.; and Sutton, W.L. TEN YEARS EXPERIENCE WITH INDUSTRIAL AUDIOMETRY, American Industrial Hygiene Association Journal, 22: 151 (1961), cited in *Industrial Noise*, DHEW, PHS, Publication Number 1572, 1967. p. N-4-3.

Ward, W.D.; Glorig, A.; and Sklar, D.L. "Temporary Threshold Shift from Octave Band Noise: Applications to Damage-Risk Criteria." *J. Acoust. Soc. Am.* 31, 522-528, (Apr. 1959).

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ABOUT DEATH

Shirley Fraser, M.D.

In the 18th century, medical interest in death was widespread due to the peril of being buried alive. For example, when some bodies were moved from one cemetery to another, among the remains were found some who showed evidence of having been buried alive. One of the corpses had the legs and arms drawn up as far as the confines of the coffin would permit and the hands were clutching the clothing with a large whiskey flask beside him. In another instances, a coffin was found to have had the glass front shattered, bottom kicked out, and the sides sprung. The body lay face downwards with the arms bent and in the clenched fists were handfuls of hair. In other instances, clothing was found torn and finger nails broken off in efforts to dig through the coffin. As the result, several Humane Societies arose in Amsterdam and Philadelphia to save people who were drowned, asphyxiated, or struck by lightning, and mistakenly taken for dead.¹

Most people accept death as the absence of cardio-pulmonary function. A recent poll showed that only 9% considered brain death as well. The public is generally unaware of the practices regarding the diagnosis of death, and what happens to the body when it is removed from the home or hospital. It may come as a surprise that embalming does not require a death certificate although burial does. Funeral homes take the body and embalm it, confident that a death certificate will arrive in a day or two. However, when the embalming fluid enters the tissues, the body may emit life like signs such as gasps, muscular contractions, but the embalming manuals reassure the embalmer that these signs will go away as embalming is carried out!²

In the past five years, more has been written regarding death than in the previous 500 years. Due to the explosion of bio-medical research, especially in the field of organ transplants, and in the prolongation of life, chemical and pharmacological support systems can carry on vital processes for long periods of time. Improvements in resuscitation and support have resulted in increased efforts to save the desperately injured. Now 75% to 90% of patients with severe head injuries, who are unconscious for a month or more, may have partial or complete recovery.

But in many instances, doctors may have difficulty recognizing when a patient needs prolonged support or is essentially dead. As most know, during the ebbing of life, there is an orderly progression from clinical death to brain death to biological death and finally to cellular death. This

is why a viable organ can be removed immediately after biological death and be successfully transplanted.³ The brain itself also dies in progressive steps, first the cortex, then the mid-brain and brainstem. With irreversible destruction of higher levels of the brain, but no damage to the vital centers in the mid-brain and brainstem, a permanent loss of consciousness may be present but cardiorespiratory functions continue — sometimes aided and sometimes not for long periods of time. It is now obvious that the previous definitions of death are obsolete. In an effort to answer this question of when death occurs, the AD HOC Committee of the Harvard Medical School recommends the following criteria for death: 1) Unreceptivity and unresponsiveness to painful stimuli, 2) no movement or breathing, 3) no reflexes, and 4) an iso-electric EEG. Even these criteria, especially the first three may result in the loss of a potential organ donor, or let a patient occupy a bed for a prolonged period of time and cost the hospital and family much money or a needy patient a bed. The last point that the AD HOC Committee makes is that the iso-electric EEG offers the best prompt diagnosis of death.⁴

Out of 1,665 patients with iso-electric EEG's, only three were found that were not in irreversible coma. These three were suffering from either barbiturate coma or meprobamate overdose. Hibernation and anesthetic drugs can also result in electro-cerebral silence. However, with those exceptions, an iso-electric EEG is evidence of irreversible coma, i.e., cerebral death. Irreversible coma, whether caused by heart arrest, asphyxia, respiratory failure, carbon monoxide poisoning, stroke, or other brain disease, is basically anoxia and ischemia of the brain. The cells of the central nervous system are more sensitive to hypoxia than any other group of cells in the organism. And brain death makes the resuscitative procedures futile. The brain is the most complex structure known and contains those unique qualities which make us individuals and humans. You, the person, are dead when your brain ceases to function, despite the slower death of the rest of your body.

Two foreign governments and two states have adopted a definition of death in terms of cessation of the brain's activity.⁶ The Alaska Medical Association's Legislative Committee has introduced HB No. 285 regarding the diagnosis of death. There is nothing on our books now regarding this matter. Last year, 1972, six patients were potential organ donors and the EEG confirmed brain death in five of them. The diagnosis of death plays a crucial role

in single organ transplants, in that the sooner an organ is removed from the donor, its survival in the recipient is much more likely to be successful. There is a current famine of organs for transplants and about 7,000 patients a year are deemed suitable recipients.⁷ However, it is not the need for organs that prompted the Legislative Committee to propose this legislation, it is protection for the public and the doctor from discontinuing life support systems too soon, to prevent appalling costs to hospitals and to families of patients on artificial support systems. Lastly, there is the heart wringing experience of a family not knowing whether their member is alive or dead.

To critics who might shout euthanasia, euthanasia is impossible when brain death has occurred. Clearly, a statement is needed to solve the current dilemma of what is death.

Proposed Definition of Death for Alaska (H.B. No. 285):

A person will be considered medically and legally dead if, in the opinion of a physician, based on ordinary standards of medical practice, there is no spontaneous respiratory or cardiac function and there is no expectation of recovery of spontaneous respiratory or cardiac function; or

If respiratory and cardiac function are maintained by artificial means, a person will be

considered medically and legally dead if, in the opinion of a physician, based on ordinary standards of medical practice, there is no spontaneous brain function and there is no expectation of recovery of spontaneous brain function. Death may be pronounced in this circumstance before artificial means of maintaining respiratory and cardiac function are terminated.

BIBLIOGRAPHY

- (1) Borel, D.M., "Defining Death" *GP* XXXIX, Jan., 1969.
- (2) Arnold, J. D., Zimmerman, T. F., Martin, D. C., "Public Attitude Toward Death" *JAMA* 206, Nov. 25, 1968.
- (3) Ayd, F. J., "What is Death?" *Medical Counterpoint*, March, 1969.
- (4) Ad Hoc Committee, Harvard Medical School, "A Definition of Irreversible Coma" *JAMA* 205, Aug. 5, 1968.
- (5) AD Hoc Committee of the American EEG Society, Silverman, D., Saunders, M. G., Schwab, R. S., Masland, R. L.; "Cerebral Death and the EEG" *JAMA* 209, Sept. 18, 1969.
- (6) Statutes State of Kansas, Chapter 378.
- (7) Castle, J. G., "Legal Aspects of Human Organ Transplantation in Canada", *Canadian Medical Association J.* 99, Sept. 28, 1968.



DEMOSTHENES REVISITED OR YOU SURE DONE A GOOD JOB ON THE BOROUGH ASSEMBLY, DOC

Milo H. Fritz, M.D.

Representative, District 9
Anchorage, Alaska

Introduction

When practicing medicine I never bring up politics. But I love discussing it with patients who do.

I am a Republican Representative in the 8th State Legislature in Juneau from District 9 in Anchorage. This fact, I sometimes think, is like the identity of the Unknown Soldier, known only to God and the Internal Revenue Service. It is often a humbling experience. Here are some observations garnered from my own Gallup Poll. It makes you wonder!

“When do you go back to Washington, Doc?”

“I’m sure glad you beat that Jack Roderick for Borough Mayor. I sleep better knowing it.”

“Doctor, how could you practice medicine in Juneau and be our Senator, too?”

“Milo, I haven’t seen you in surgery or the doctors’ lounge. Been on a vacation?”

“I like all them diplomas out in the waiting room. I feel confident with you. But I didn’t know you were a chiropractor too!” (I had introduced a measure to make chiropractic practice illegal in Alaska.)

“Too bad you guys couldn’t pass a few good laws while you was at it. Oughta lay off them page girls and tend to business, I say. Of course I don’t mean you, Doc.”

Well, nobody made me run for office. I did so because I love my country and because being a member of the Legislature is fun displaying intricacies of human nature, greed and fear quite differently from the way they appear in the office. Being an elected Representative is a source of great pride and satisfactions mingled with the determination to do a good job not deserving of this (from a state government employee against whose pay raise I voted): “My wife and I both

voted for you last November. We won’t make that mistake again.”

Four Bills

The most important legislation, House Bill 126 in order to preserve our plummeting supply of fish and crustaceans, limited the number of commercial fishermen and the type and amount of fishing gear. This bill has imperfections. But there are no laws that cannot be repealed or amended — except the ten commandments, but from recent observations maybe they have.

The most notorious bill was House Bill 17 that would have made the practice of chiropractic illegal in Alaska. 1200 letters flooded the Governor’s office and the Legislators. An unknown but great number of personal calls, phone calls and telegrams overwhelmed us. House Bill 17 not only never got out of its first committee of referral (Health, Education and Social Services) but scheduled public hearings were cancelled because the Alaska State Medical Association, which initially asked me to introduce the bill, asked me to withdraw it. The point is that in Alaska 1200 letters will insure the passage or defeat of any legislation and that if the electorate does nothing a bill cancelling all taxes for a year would never even reach the floor of the House for debate.

The most important piece of medical legislation was Senate Bill 32 — the so called Treatment of Minors bill. Passed by the Senate it was referred by our Speaker (who opposes the bill) to the Judiciary Committee (whose chairman opposes the bill). And there it will stay unless you, the members of the Alaska State Medical Association, think it is important enough to demand public hearings, attend committee meetings and above all write the legislators and the Governor — as the chiropractors did.

A handful of opticians did this, and House Bill 33 licensing opticians became law. They spent considerable money. One or more opticians attended two public hearings in each house held by the Health, Education and Social Services and Judiciary Committees. They called on the Governor and they did not complain when a

hearing was held over 24 or 48 hours because of the press of other legislative business.

This, my friends, is what you have to do if you really want a measure adopted, amended or rescinded. There is no other way.

Official Life of a Legislator

We had 750 pieces of legislation before us. We each served on two or three committees. There were scores of public hearings. We worked 5-7 days a week and averaged 4 evenings of work a week throughout the session. Representative Earl Hillstrand, Chairman of House Finance Committee, and his men worked 7 days a week and almost every night on the budget for 3 solid months.

A few, a very few, did little but push the red and green button as the majority leader indicated, appeared hung over or as infrequently as possible at committee meetings or on the floor of the house. However I feel most of us earned our pay doing our best to do what the electorate desired or our consciences dictated.

The Budget

The budget is \$125,000,000 in the red. Yet all sorts of nonproductive social legislation was introduced. Good? Sure! But we can't afford it. Until the Federal Government permits our North Slope oil to flow we will be in debt.

State employees wanted a pay raise and very nearly got it. Some of us will go down to defeat in 1974 because we opposed it. I alone received 50 letters asking for support I could not give.

Why Don't They Do Something

My main interests are:

House Joint Resolution 7 will eventually result in a canal between the lower Yukon and lower Kuskokwim rivers.

House Bill 27 will put the first state ferry on the Yukon.

House Bill 34, the junk car bill would have cleared Alaska of wrecked and abandoned motor vehicles. It was castrated in the House by exempting home rule cities from the statute and in the Senate by deleting the \$1.00 that was to be added to the annual registration cost of motor vehicles. Here again a few hundred letters to the Governor and Legislators from the thousands who verbally deplore the junk-strewn landscape would have made this excellent bill become law — intact. I intend trying to amend it next session. Will you help? Will your patients, relatives, friends?

House Concurrent Resolution 43, Dr. Bill Mills' great bill, if enacted would have standby exchangeable stretchers at the major airports of

Alaska for the care of crash victims. It languishes in the House Finance Committee because nobody cares. When the inevitable tragedy occurs and people die because immediate care is not available you will hear "Why don't they do something?" Well, a few of us have tried. Bill Mills who has already served his country, his state, and his profession in a measure that few if any of us can match came to testify at a hearing at his own expense. I've helped as best I could. But if it is to pass it needs testimony, letters, phone calls — in the hundreds. It's up to you.

House Bill 36 would no longer exempt insurance companies from paying for hospitalization of their subscribers if it occurred in a government hospital. This languishes in the Commerce Committee and will stay there — the insurance companies will see to that unless we rouse ourselves from our apathy and spend some time, money and ink to move the Bill.

House Concurrent Resolution 11 is stuck in Finance, it would establish a program of physiatry, rehabilitation and occupational therapy for our pioneers. But even the pioneers made no significant effort to push this legislation along.

House Concurrent Resolution 12 is stuck in Finance also and would place crucial eye and ear, nose and throat equipment in the Pioneers Home. Apathy and lack of interest of pioneers and others who give lip service to the concept of a richer life for our older citizens impede the progress of this legislation.

Medicaid. The Noose About Alaska's Neck

An uneasy truce was signed in January 1973 between the Alaska State Medical Association and Dr. Fred McGinnis, Commissioner of Health and Social Services. I predicted that the pact would change nothing. Arbitrary, unilateral, and unpredictable discounts are made against all physicians' charges based on something called the individual physicians' profile (of charges) which must change from hour to hour. I have seen 5 orthopedic surgeons all crying at once over the fiscal rulings of Health and Social Services. My recommendation is for physicians who do not participate in Medicaid continue doing so and those that who do individually resign. Until the Medicaid problem is solved I recommend the care of the truly indigent for nothing and the poor on the basis of what they can pay or offer in goods or services.

Cutting The Noose

In every political campaign politicians impugn the ability of those best qualified to do something by saying, "Plumbing is far too important to leave

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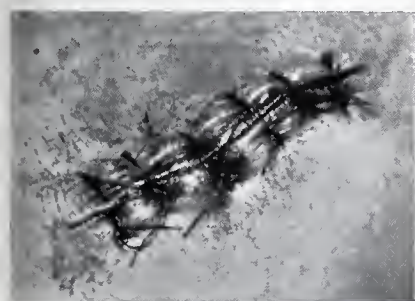
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Indications: Pro-Banthine is effective as adjunctive therapy in the treatment of peptic ulcer. Dosage must be adjusted to the individual.

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Warnings: Patients with severe cardiac disease should be given this medication with caution.

Fever and possibly heat stroke may occur due to anhidrosis. In theory a curare-like action may occur, with loss of voluntary muscle control. For such patients prompt and continuing artificial respiration should be applied until the drug effect has been exhausted.

Diarrhea in an ileostomy patient may indicate obstruction, and this possibility should be considered before administering Pro-Banthine.

Precautions: Since varying degrees of urinary hesitancy may be evidenced by elderly males with prostatic hypertrophy, such patients should be advised to micturate at the time of taking the medication.

Overdosage should be avoided in patients severely ill with ulcerative colitis.

Adverse Reactions: Varying degrees of drying of salivary secretions may occur as well as mydriasis and blurred vision. In addition the following adverse reactions have been reported: nervousness, drowsiness, dizziness, insomnia, headache, loss of the sense of taste, nausea, vomiting, constipation, impotence and allergic dermatitis.

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***Indications:** Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome; steroid-induced and idiopathic edema; edema resistant to other diuretic therapy. Also, mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired. Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (> 5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide,' check serum potassium frequently—both can cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe patients on 'Dyazide' regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides

are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with anti-hypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles of 100 capsules.

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in the hands of plumbers.” or “Health is far too important to leave in the hands of physicians.” Substitute banking, education, engineering and note how office seeking thinkers invoke this superficially profound statement on every soap box.

The best way to solve the complex problem of medical care in Alaska is by following the lead of the educators who split education out of the Departments of Health, Education and Social Services by establishing a separate Board of Education with a Board appointed Commissioner of Education. We can do the same under Article III Section 26 of the Constitution of the State of Alaska and be forever free of the well intentioned but inept meddling of commissioners completely ignorant of the needs and history of patients and physicians. Our commissioner should be a physician licensed in Alaska and within Alaska at least 5 years experience in private practice. Only then can we be free of the constant harassment suffered by patient and physician when medical affairs are placed in the hands of people other than physicians.

Getting this done will be tough. We cannot lean on the overworked physicians of Juneau and Southeastern Alaska. We must be willing to write, get patients and friends to write, phone, talk to and telegraph all the Legislators and the Governor spending time and money, travelling to and from Juneau, being patient with delays and maybe even being friendly with your Legislators going so far as extending the hand of friendship to me.

The Legislative Affairs Agency is drawing up the legislation. I will prefile it as early as the law allows. It will be introduced on the opening day of the 2nd session of the 8th Alaska State Legislature. Its fate — depends upon each of you.

Observations

Each of you has received a roster of Legislators with the names of their physicians:

yourselves. Here is where you start. Some of you must be at 1 meeting of each committee of referral and each public hearing in each house and if a hearing is put off accept it gracefully; the teachers do, the bankers do, the fishermen do. Are we better than they? Too busy? Not interested? So be it. But then don't complain! If you work as hard at this as the fishermen, opticians, and chiropractors you will obtain what they did — success!

Conclusions

In closing I submit two additional missives that will always keep me humble.

“Hi ya Doc, you're doing a great job in there on the Board of Education! I voted for you, the Mrs. voted for you, my 5 sons voted for you and my grandson too. He's on McNeil Island now serving 5 years for shooting his Social Science teacher. If he'd been black or native and a woman Olaf woulda got life.”

“Dear Dr. Fritz:

You have been in Juneau 2 months now. There is no Ferry on the Yukon. The canal isn't even started yet. Reforestation of those bare spots near Petersburg has not begun. The Knik crossing isn't even on the drawing boards so probably it won't be open for traffic this summer. My wife says you're a great big phoney and I think she's right. Get busy, that's what we're paying you for.

Respectfully — — ”

*Milo H. Fritz, M.D.
Rep. Dist. 9 Anchorage
2235 Vanderbilt Circle 99504*

FAMILY PRACTICE

The Alaska Family and Industrial Clinic, a new Clinic in Anchorage is in need of three physicians in family practice. Competitive salaries are offered, calls shared, Clinic located next to a new private hospital. Interested physicians contact Robert Ogden, 4050 Lake Otis Parkway, Anchorage, 99504.

JACK SEDWICK

Howard Romig, M.D.



Dr. Sedwick, left, with Stanley Gwinn father of Mrs. Katharine Sedwick Gwinn. Picture of recent date, 6 Beautiful King Salmon at a "secret" fishing spot.

This is a short story about Alaska's "Greatest General Surgeon." Dr. Sedwick came to Anchorage twenty-two years ago to join Drs. Martin, Romig, Wilkins and St. John at the Anchorage Medical and Surgical Clinic. He will retire June of 1973, leaving a hard to match record in technique, skill, attention to duty and accomplishment.

Dr. Sedwick has many excellent qualities "outside" of medicine. He is a fanatic sport fisherman, an accomplished skier and a private pilot. With all these achievements, he has combined a rare sense of humor, the inveterate use of good Cuban cigars and the love of exquisite sport cars. Over and above these, he has been a great husband and father, a perfect host in a home, and envy of many an architect and interior decorator. While Dr. Sedwick may have had other "outside business interest," he took over personal management of his Esquire Shop, an exclusive haberdashery for men. He is certainly Alaska's best dressed citizen and physician.

Dr. Jack Donovan Sedwick is a "gentleman by birth." He was born in Kittanning, Pennsylvania, on September 19, 1909, to John W. and Zettie Peters Sedwick. He attended school in Kittanning, finishing high school there in 1927. He attended the University of Pittsburgh, graduating in 1933, and next the Medical College of Virginia, Class of 1937. His post graduate training started at St. Francis Hospital, Pittsburgh. Following a short

term of private practice, he joined the U.S. Army January 1941, where he served until 1946. While in the Army Dr. Sedwick saw two and a half years of duty in the Pacific Theatre. From the Pacific he was returned to the Army Hospital at Atlantic City for surgical care. Upon recovery, he saw duty at Fort Dix, Blackstone, Virginia, and Deshon Hospital in Butler, Pennsylvania. At the end of the war he was Commanding Officer at Deshon Hospital Annex at New Castle, Pennsylvania.

Dr. Sedwick was married to Marion N. Hilton of Kittanning, July 18, 1939.

The first child, John Weeter Sedwick, was born March 13, 1946, in Kittanning. He attended Anchorage Public Schools, graduating from West Anchorage High School. He is a graduate of Dartmouth College and Harvard Law School. In 1966 he married Deborah Brown, daughter of the J. Vic Browns of Anchorage. They have one son, Jack Donovan Sedwick II. John practices law in the firm of Burr, Pease and Kurtz in Anchorage.

The next child, William Rutan Sedwick, was born April 10, 1949, in Muncie, Indiana, while his Dad was in surgical residence. He also is a graduate of West High School. He attended Western State College of Colorado. He transferred next to the University of Washington where he is now entering his Senior year in the University of Washington Dental School. He is married to Judy Harris, daughter of the Frank Harrises of Anchorage. They have one daughter, Carrie Rutan Sedwick.

The third child, Katharine Ann Sedwick, was born March 26, 1950, in Toledo, Ohio, where her father was finishing his surgical training as Chief of Resident Surgeons. Katharine Ann is now Mrs. Stephen M. Gwinn of Everett, Washington. She and her husband are graduates of Washington State University.

Dr. Sedwick came to Anchorage in 1951 where his achievements have become legend in local medical and surgical circles. He brought many life saving "firsts" to medical science locally. The greatest of his accomplishments were the result of hard work, constant availability, tenacious care in difficult cases — in short I would say, "Service Above and Beyond the Call of Duty." With the physical fatigue of long hours at work and the constant responsibility while at rest or home with his family, he managed to maintain a keen sense of humor. With all this, he was a most gracious host when occasion demanded and considerate friend to those in need.

Dr. Sedwick's social life revolved about his family and very close friends. While he had the

qualities, grace and surroundings to be a “society leader,” he was not the least bit pretentious. His friends who loved him came from all branches of our local social structure. All of these select few friends were solid in the comfort of his honesty and integrity.

Dr. Sedwick’s practice was the first totally “referred” type of surgical practice in Alaska. He stuck strictly to his specialty, where he excelled. He was respectfully dubbed “Speedy” by some of his colleagues. This speed in surgery grew out of his

total lifelong dedication to his work — and his inborn skill. Men of such professional integrity and accomplishment are few and far between.

With such perfection, you might say a man must have a fault or two. I have seen him properly angry, when grievously and unfairly needled. I have seen him throw an instrument or two when terribly frustrated, fatigued or put upon. I put Dr. Sedwick in a class with my Dad, which is at the top.

In conclusion, I will simply say, “Jack I will miss you very much. In fact, all of us will.”



PRESIDENT'S PAGE

Glenn B. Crawford, M.D.

The absence of an Executive Secretary has demonstrated that there must be broad and continuing membership involvement in the affairs of this Association. We can no longer afford the luxury of total reorganization following the annual meetings. The added responsibilities thrust on state medical associations by the Federal government and other third parties has made it essential that we organize to assure continuity. By carefully restructuring and fully involving the President-Elect, we will be able to establish priorities and goals that will give a new Executive Secretary the guidance and direction that will make him effective and essential to the Association.

As a first step, the annual poll of the membership for committee interest, as required in the By-Laws, will be conducted after the committee chairmen have been appointed, thus giving all of you an opportunity to align with chairmen that you feel you can work with most effectively.

I anticipate a joint meeting of all committee chairmen and officers of the organization to assess the relationships and functions of the various committees and to define their areas of activity and responsibility. It is essential that we achieve a continuity of purpose to avoid responding with a serious dilution of our efforts to multiple "crisis" which too frequently evaporate with time.

The list of potential tasks and responsibilities is impressive without the inevitable additions that will result from future state and federal legislation. There is no question that we must be involved in implementing PSRO with its associated requirements for continuing professional education.

Having achieved some input into the state Medicaid program, it is very desirable that we continue this relationship with the Department of Health and Social Services, and expand it to include the areas of public health, corrections, and mental health.

As the availability of USPHS physicians decreases and the federal expectation for our native citizens to assume a more active role in obtaining medical care increases, there is a clear necessity for the State Medical Association to realistically examine and plan for rural Alaska health delivery.

The vote of confidence evidenced by the dues increase reflects the feeling of necessity for a state organization and can be considered a mandate to continue functioning on a sound financial basis and to provide the leadership that is necessary to keep the practice of medicine, whether it be government or private, responsive to those individuals we call patients.

ANNUAL MEETING REPORT ALASKA STATE MEDICAL ASSOCIATION June 6-8, 1973

1. Legislative Activities

The House asked that the Legislative Committee re-evaluate many Alaska State laws which relate to sex offenses and seek appropriate legislative action.

The House reiterated ASMA's opposition to the repeal or dilution of drug ant substitution laws.

2. Medical Education and Licensure

The House resolved that the Alaska State Medical Association develop a system for all physicians to report their continuing

education activities, to establish a means of ASMA accreditation of continuing education programs, and to evaluate the effectiveness of such education programs by promoting the establishment of a medical audit system in Alaska hospitals.

The House urged the establishment of a three-year accredited Family Practice Residency in Alaska.

The House determined to encourage the continued existence of the Alaska Health Manpower Corporation, reiterating endorsement of the Corporation's goals as outlined in its Articles of Incorporation, and

agreeing to offer to share staff and office space with AHMC contingent upon the Corporation's financial situation.

3. Medical Practice and Medical Economics

The House resolved that the Articles of Incorporation and Bylaws of the Alaska Medical Education and Research Foundation be appropriately amended so as to qualify that organization to apply for designation as a Professional Standards Review Organization for the entire State of Alaska.

The House adopted the policy position that physicians should be compensated for the service rendered by themselves, or their physicians' assistant, on a uniform basis whether the physician is, or is not, board certified.

The House took a position vigorously opposed to fee "freezes" in the light of increasing costs in practicing medicine, and directed that the U.S. Cost of Living Council be informed that such practices are discriminatory against physicians.

4. Communications

The House supported the Washington/Alaska Automated Tumor Registry and urged the Alaska Department of Health and Social Services to annually budget operating funds for this program.

5. Environmental and Public Health

The House directed ASMA to take an active role in creating increased public awareness of the responsibility of the individual in maintaining his health, and the means at his disposal by which he can do so.

The House stated that ASMA would seek to influence appropriate authorities to establish and emphasize public school health courses in basic hygiene, physiology, and anatomy.

6. Constitution and Bylaws

No action to report.

7. Medico-Legal and Medical Ethics

No actions to report.

8. Allied Health Activities

No actions to report.

9. Management and Membership Services

The House determined that ASMA should formulate guidelines to aid local medical societies in assisting debilitated physicians and their families.

The House determined to ask the appropriate officials of the State of Alaska to take all possible steps to increase efficiency in handling Medicaid paper work and to upgrade Title 19 fees.

10. Other

The House increased the annual dues of ASMA from \$200 at present to \$450 effective January 1, 1974.

Glenn B. Crawford, M.D. of Anchorage was installed as President. Rodman Wilson, M.D. of Anchorage was chosen as President-Elect, and Frederick Hood, M.D. of Anchorage was elected Secretary-Treasurer.



MUKTUK MORSELS

THE FUTURE OF THE WASHINGTON/ALASKA REGIONAL MEDICAL PROGRAM

Donald R. Sparkman, M.D.
Director

When the President signed the Health Programs Extension Act of 1973 in mid-June, Regional Medical Programs were given another year's lease on life. The bill received a remarkable and near unanimous passage in both Houses of Congress — 372 to 1 in the House and 94 to 0 in the Senate. It extends the life of RMP, and other federally funded health programs threatened by the Administration's de-emphasis on health, for one year, during which time all will be carefully evaluated as to their future.

Although the bill includes language which requires the President to spend the funds, and the total budget for all programs is less than the President's request for them, funding is still problematical. Appropriation legislation must be passed, must cross the President's desk and squeeze past the Office of Management and Budget.

During the year, Congress will rewrite the Public Health Service Act to rearrange and coordinate some of the federal health programs. RMP's mission probably may not be much different than at present.

In Alaska, one program, the Alaska Health Manpower Corporation, survived the phaseout orders with funding through February, 1974. The Corporation, charged with improving medical and health services, particularly in rural Alaska, by efficient deployment of manpower, reorganized itself in June. Its reduced its unwieldy 30-member board to seven and activated special committees for four priorities of action. These are: assistance to communities in developing health care systems, supportive education programs for health manpower resources and consumer, determination of health care needs for personnel working on the Alyeska pipeline, and improvement of communication with the bush areas.

The Alaska portion of a two-state proposal to improve the quality of work in hospital laboratories through quality testing and assessment, begun by RMP, is also going forward under the auspices of the Alaska Hospital Association with funding from the Kellogg Foundation and the State Manpower Training Division.

Patient Care Appraisal, a means of determining continuing education needs, was

inaugurated in Alaska before the shutdown of RMP funds. Two Sitka hospitals, Mount Edgecombe and Sitka Community, have been carrying out an audit of professional care with guidance from RMP for the past two years. Fairbanks Memorial began its PCA program in January of this year with partial funding from W/ARMP. In Kodiak, the Holmes Johnson Clinic pioneered an appraisal of clinic and office practice by its own request to RMP in 1971.

Emergency Medical Services are a crucial problem for Alaska. Revival of the already approved application for an Anchorage EMS system is a hopeful possibility if funds become available. W/ARMP has funded a 32-hour Emergency Trauma Training course for Department of Public Safety personnel and others, such as hunters, fishermen, bushpilots and Red Cross volunteers. It is video-taped so that one man can be a mobile training team, and has been field-tested with Sitka firemen.

RMP also sponsored a two-day workshop to bring together volunteer and other ambulance operators to plan the location of 12 ambulance stations in the Alaska Highway System. The ambulances are to be provided by the Department of Transportation.

The Alaska RMP staff assisted in planning the Alaska Federation of Natives' Rural Health Planning Conference in Anchorage this April. One of the expected outcomes of that conference was that several of the Native Associations became interested in developing their own health program. In that connection, Alaska RMP staff assisted Carl Jack, Director of AFN, Inc., Health Affairs, in developing a Tanana Chiefs Conference Health Program. A similar effort was expended by AFN, Inc. with the Bristol Bay Native Association; several other native associations have indicated a strong interest to do likewise. Such efforts will be further pursued in the AFN Rural Health Planning Conference to take place in the Fall of 1973.

Policy and activities of W/ARMP are determined by a 40-member Regional Advisory Board in which seven Alaskans are faithful and productive participants. They are: Mary Jane Fate, Fairbanks; Winthrop Fish, M.D., Anchorage; Donald K. Freedman, M.D., Juneau; Elmer Gagnon, Anchorage; George A. Longenbaugh,

M.D., Sitka; Harry Porter, Anchorage; and Donald R. Rogers, M.D., Anchorage. Dr. Rogers is also chairman of the 25-member Alaska Advisory Committee for W/ARMP.

As a part of the reduction of staff required by the phaseout, we are losing Denny DeGross, who has served the Program most effectively during the past year. Denny has accepted a challenging post as the Native American advocate at the University of Oregon, but will return to Alaska later to assist in planning the AFN Rural Health Conference in September.

Under present phaseout plans, not yet rescinded by the national office, Mary Janzen, our energetic Alaska representative, will continue at the Anchorage office until the end of the year. But since there is now an aura of hope growing in the RMP skies, it is likely that he, too, will continue to serve Alaskans in the future.

BETHEL

Following a series of minor problems at the Bethel Hospital, the problem of violence reached a new height this Spring. A nurse on duty at the hospital was severely slashed about the face by an attacker who entered the hospital. Currently, the Public Health Service and the city of Bethel are each assigning the other the responsibility for paying the salary of the guard now required to protect the hospital staff. The nursing shortage is reported to be acute in the wake of the recent violence.

FAIRBANKS

BRUCE WOLFE, M.D., has left the Alaska Native Medical Center to join DR. WILLIAM KINN, in the practice of ophthalmology.

SHARADKUMAR DICKSHEET, M.D., has left the Fairbanks Clinic and has entered private practice in Fairbanks in ophthalmology.

PAUL STUCK, M.D., has returned to Fairbanks in the private practice of Obstetrics and Gynecology.

ANCHORAGE

The Fairview Family Health Center opened in March, 1973. WILLIAM DE'AK, M.D., is the Chief of Staff of the Clinic. CARLOYN BROWN, M.D., joined the Clinic on July 1st as Chief of Preventive

Services. Currently two physicians' assistants serve on the Staff.

The hemodialysis unit at Providence Hospital opened on June 15, 1973. JOHN SELDEN, M.D., is the Nephrologist in charge of the unit; THOMAS WOOD, M.D., is the co-director. Both in-patients and out-patients will be treated until an out-patient dialysis unit is found in the Anchorage area in co-operation with the Greater Anchorage Area Borough Comprehensive Health Planning Board.

JACK SEDWICK, M.D., has retired from private practice with the Anchorage Medical and Surgical Clinic and will reside in Oregon.

RICHARD BUCHANAN, M.D., will join Doctors SELDEN, STEWART, and WOOD, on August 1, 1973, in private practice. DR. BUCHANAN has just completed a two year fellowship in gastroenterology at the University of Washington.

DEBORAH EDITH WRIGLEY was born to DR. & MRS. JOHN WRIGLEY on April 26, 1973.

PALMER

HARRY OWENS, M.D., has temporarily closed his practice to join the medical ship HOPE as ship physician.

HAROLD BARTKO, M.D., has closed his practice in Palmer to return to the lower "48".



At the departure reception in Baltimore, Dr. Walsh introduces some key personnel for the Maceio, Brazil, mission: (left to right) Dennis M. Lucey, administrator; Martha Hopkins, chief medical technologist; Sandra Wisener, assistant administrator, nursing services; Carol A. Fredriksen, assistant administrator, allied health activities; Dr. Harry R. Owens, Jr., ship's physician; Dr. Owen Wiley, dental coordinator.

NORTHERN HIGHLIGHTS - 7

SELECTED ABSTRACTS ON MEDICINE IN THE NORTH

MENTAL HEALTH

Porter, M.R.; Vieira, T.A.; Kaplan, G.J.; Heesch, J.R.; Colyar, A.B.

Drug use in Anchorage, Alaska. A survey of 15,634 students in grades 6 through 12 — 1971. *J.A.M.A.* 223: 657-664, 1973.

This significant drug survey of Anchorage schools was carried out cooperatively in the spring of 1971 by the Community Drug Survey Committee, with representatives from all the major local agencies dealing with health or education in Anchorage. It was sponsored primarily by the Greater Anchorage Area Borough Health Department.

After a suitable pre-test, the survey questionnaire was administered to students in grades 6 to 12 in all 61 schools of the Anchorage Borough School District and the Anchorage military installations. Over 97% of questionnaires were turned in, and 91.0% of these were considered usable, representing 81.3% of all students enrolled in these grades.

Of the study group, 26.6% were classified as non-users, 37.1% had used tobacco or alcohol, or both, and 36.3% had used other types of drugs at least once. Among users, the sex ratio was nearly 1.0. The percentage of non-users declined steadily from grade 6 (51.5%) through 12 (8.7%).

Marijuana was the most commonly used drug, after alcohol and tobacco, with 3.4% of sixth graders and 45.7% of 12th graders having tried it at least once. Marijuana was followed in frequency of use by solvents, non-prescription stimulants, hashish, and amphetamines. Every drug except solvents showed increasing use as the grade level increased. Use of multiple drugs also increased with grade. Heroin-like drugs were reported as tried at least once by 0.5% of 6th graders and 9.1% of 12th graders. Nearly 3 percent of 12th graders had used them 10 or more times.

Students who had tried marijuana also reported high rates of other drug use. However, heroin was less frequently reported by users of marijuana than any other drug.

Of the first drug used, other than alcohol or tobacco, marijuana was the most frequently named (36.2%), followed by solvents (9.0%) and non-prescription stimulants (5.0%).

In comparison with similar studies in Dallas in 1969 and San Mateo County, California in 1970, the Anchorage survey showed marked increases in the use of hashish, mescaline, and propoxyphene hydrochloride. Alcohol and tobacco use was also notably higher among Anchorage students as compared with those of the other two communities.

Straus, R.

Editorial. Why publish another drug survey?

J.A.M.A. 223: 681-682, 1973.

In this editorial the author comments very favorably on the article by Porter *et al* abstracted above. He points out that this survey, unlike many others which are of local interest only, has national significance because its findings can be compared with those in other major cities.

The design of the study, its pretesting technique, and its low cost are also commended.

The actual results of the study, of course, are grim evidence that Anchorage youth are in the "mainstream" of American society.

Bloom, J.D.

Psychiatric problems and cultural transitions in Alaska.

Arctic 25: 203-215, 1973.

This article reviews a series of 105 Alaska Native patients referred for psychiatric evaluation or treatment during the years 1966-1968. The author, who is now with the Langdon Psychiatric Clinic in Anchorage, was with the Mental Health Unit of the Alaska Area Native Health Service at the time he cared for these patients.

The individual cases analyzed here were all direct psychiatric referrals. Eighty-one percent were from physicians working at the field hospitals of the Indian Health Service, and another 13% were from various social agencies. Sixty-three percent of the sample were Eskimo, 15% Indian, 12% Aleut, and 10% of mixed extraction, but these figures simply reflect the travel pattern of the unit. Nearly two-thirds of the patients were female. Although 67% of the patients were born in a village, only 30% were currently village residents, a fact which sheds light on the extent of migration in recent years. Substantially more women than men in the sample had changed their residence. The mean age of the men was 32 years and of the women 29 years.

The referrals fell naturally into three main groups:

a. Fifteen patients who were known to be mentally ill in the past.

b. Forty-one patients who now exhibited signs and symptoms of a psychiatric disorder.

c. Forty-nine patients who had psychiatric symptoms but who, in addition, had threatened some type of destructive behavior, either against themselves or others. The crisis leading to referral was most often a broken or strained interpersonal relationship.

The commonest single psychiatric diagnosis was schizophrenia, seen in 22 patients, followed by depressive neurosis in 15 and alcoholism in 11, although it should be noted here that these figures are based on first diagnoses only. The general category of Personality Disorders was most frequent in the group (28%), followed by Psychoses (26%) and Neuroses (16%). A comparison by sex revealed that significantly more of the men had psychosis diagnosed and significantly more of the women had a neurosis or personality disorder diagnosed.

The author then reviews the results of studies of other workers on arctic Native populations, with emphasis on their findings of conflicting life styles, unhealthy social environment, sociocultural disintegration and the crisis of transition. He also discusses the concept of the Native as the "marginal man," at the fringe of a society that does not fully accept him.

The observation that the pattern of mental disorder in women is unusual leads into a discussion of the possibility that the "hospital casualty network" may attract women more than men and that the jails may be handling many of the equivalent neurotic problems among males. There is however, also some evidence from other sources that Native women seem to have some problems peculiar to their own place in society.

A few individual cases in this study showed elements of traditional thought content, including shamanism, in their mental disorder.

The author is hopeful that in the future the Alaska Native Land Claims Act and the growth of Native political awareness can be made to strengthen the sense of identity and pride and the internal psychological reserves of the Native people.

Bloom, J.D.

Migration and psychopathology of Eskimo women.

Amer. J. Psychiatry 130: 446-449, 1973.

This paper explores in greater detail than the last paper migration patterns and other possible causes for the observation that Eskimo women appear to have a greater propensity toward psychopathology than Eskimo men.

In recent decades, the pattern of migration from Eskimo villages has been that young adults are leaving the smaller villages for the larger towns or the urban areas of Anchorage and Fairbanks. The reasons include better educational opportunities, the proximity of health services, the desire for cash employment, and the general lure of city life. A further factor of particular importance in women is marriage to non-Natives. Some evidence to support this latter hypothesis is available from the Aleutians and from the Arctic slope.

Various investigators have noted what appears to be a differential pattern of psychopathology in Eskimo men and women. "Pibloktoq" and "amurakh," both culture-specific mental disorders, were both described primarily in women. More recent epidemiological evidence also supports the contention that women have a higher prevalence of psycho-neurotic problems than men, although more work is needed particularly from urban areas to confirm these observations.

The author suggests several possibilities which may cast light on these patterns of migration and psychopathology. He notes that many Eskimo women are dissatisfied with their traditional role definition in the village and desire change, often manifested as migration. Since there is a shortage of women in the non-Native (or "receptor") culture in Alaska, mixed marriages are common. Because of mutual disillusionment, these often end in separation, depression, alcohol abuse, and suicide attempts. Women who are dissatisfied with their cultural role in the village thus fail to find fulfillment in the urban areas and their identity is further disrupted. Migration itself can also be a crisis, and since many elements of prejudice remain in the towns and cities, severe adjustment problems may be generated.

The author urges that these hypotheses be further tested, especially in urban areas, and that the results be translated into programs.

Dyggve, J.; Kodahl, T.

Mental retardation in Greenland

Danish Med. Bull. 18: 157-160, 1971.

This paper reviews a 14 years' experience with Greenlandic patients at Andersvaenge, the Danish State Institution for the mentally retarded. Since no suitable facilities for the mentally retarded are available in Greenland itself, patients needing long-term institutional care are brought to Denmark. During a 14 year period, 119 Eskimo patients were admitted, of whom 17 died and 38 were later discharged. There is currently a waiting list of 41 patients from Greenland. Eighty percent of admissions were under 16 years of age and 35% were less than 6.

Of the 119 patients, 27 (23%) had an IQ of 75 or over. Nearly all of these patients have been discharged. Most of

these children had either a severe behavior problem, or were hard of hearing due to chronic middle ear disease. Sixty percent came from poor and crowded homes.

Thirty patients had an IQ of 50-75, five of whom were psychotic. Other common problems were epilepsy (30%), cerebral palsy (23%), birth injury (20%), and meningitis sequelae (17%). Only 4 patients were successfully discharged to Greenland.

Thirty-five patients were moderately mentally deficient, with an IQ between 25 and 50. Over 1/3 of these had a close relative who was mentally retarded. Major problems in this group included epilepsy (37%), birth injury (20%), and meningitis sequelae (14%). Four patients died and only 2 have been discharged.

In the profoundly retarded group (IQ 0-25), 44% of the 27 patients have died. Major problems included epilepsy (59%), cerebral palsy (48%), meningitis sequelae (30%), and Down's syndrome (18%). It is a striking fact that 78% of this group were males.

Social conditions which seemed unusually prominent were poor home conditions, and intemperance in the parents.

Overall, the geographic distribution of cases was not unusual. The total frequency of Greenlandic patients needing institutional care is about 3/1000 compared with a rate of 2/1000 in Denmark. The excess in Greenland seems to be due to the problems secondary to meningitis and perhaps consanguinity.

BIOGRAPHICAL

Salter, R.

The Grenfell Medical Mission of Northern Newfoundland and Labrador. An international adventure. The early years: Sir Wilfred Grenfell. *Among the Deep Sea Fishers* 70: 2-7, 1972.

This article is apparently one of a series which will describe the men and deeds associated with that remarkable institution, the Grenfell Mission. This one briefly tells the life story of the founder Sir Wilfred Grenfell.

Grenfell was born in 1865 in a small English fishing community and grew up a vigorous active boy. When he was 17 the family moved to London where the father became Chaplain at the London Hospital. The following year Wilfred entered the Medical School there, and fell under the strong influence of a leading surgeon Sir Frederiek Treves. After graduation, Grenfell, at the urging of Treves, joined the Royal National Mission to Deep Sea Fishermen, serving first with the North Sea fleet and later on the rocky coasts of Newfoundland and Labrador. Profoundly impressed with the needs of this destitute population of fishermen, the young doctor devoted all his considerable energies to the establishment of hospitals, schools, trading cooperatives, and churches.

Over the next 40 years Grenfell became a legend among the people of Labrador. He was indefatigable in his own efforts and was able to attract a dedicated and talented group of helpers such as Dr. Harry Paddon at North West River (whose son Dr. Tony Paddon is still with the Mission) and Dr. Donald Hodd on the Quebee Labrador Coast. In later years, Grenfell himself devoted himself to fund-raising and writing, leaving the Mission operation to his many associates.

Dr. Grenfell died in 1941 but the work began is still a vital force in the lives of the people of Northern Newfoundland and Labrador. Under the name The International Grenfell Association, the Mission flourishes today as a system of modern hospitals, nursing stations, and other facilities, supported not only by private contributions, but by the Provincial Government.

Fortune, R.,

"Polar" Hayes. Arctic journeys of Isaac Israel Hayes, M.D. (1832-1881). *N.Y. State J. Med.* 72: 2355-2358, 1972.

This paper is a biographical sketch of the career of Dr. Isaac Israel Hayes, one of the foremost American Arctic explorers of the 19th century. It is based largely on Dr. Hayes's own writings and on contemporary newspaper accounts.

Hayes graduated from the University of Pennsylvania Medical School in 1853 and immediately joined the Second Grinnell Expedition under the command of Elisha Kent Kane, M.D. In the brig *Advance*, Kane was searching the Smith Sound region for traces of the lost expedition of Sir John Franklin. The ship became frozen in the ice on the Northwest Coast of Greenland for two winters, during which the crew suffered incredible hardships. As surgeon, Hayes played an important part in the drama of survival and also made some significant explorations of Ellesmere Island.

Following Kane's untimely death in 1857, Hayes assumed the leadership of American Arctic explorations in the Smith Sound region. After considerable effort and frustration, he assembled his own expedition and departed for Greenland in command of the schooner *United States* in 1860. The party wintered on the Greenland Coast (a huge arm of Greenland now named the Hayes Peninsula in his honor) and made a notable sledge run across the Sound to Ellesmere, where he reached a northernmost limit of over 80° N. latitude. That summer the expedition returned to the United States, where the Civil War put an end to further plans for exploration.

Dr. Hayes spent most of his later years lecturing and writing about the Arctic, particularly about his theory of an Open Polar Sea. In 1869 he made a final trip to Greenland, as a passenger on a summer yacht cruise. He served in the New York State Assembly from 1875-1881. He died of heart disease shortly after, at the age of 49.

— Robert Fortune, M.D.



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Alaskan Willow Ptarmigan

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Cover: Willow Ptarmigan by John Pitcher. Young, gifted and dedicated, John Pitcher is one of Alaska's finest wildlife artists and seems destined for national recognition. From early childhood in his native Portage, Michigan, Pitcher developed a consuming interest in all wildlife. A summer visit to Alaska after high school converted Pitcher to an Alaskan-by-adoption, and after a tour in the U.S. Army, he and his bride Sharon honeymooned along the Alaskan Highway. Eventually they established a studio in Eagle River, Sharon to enter the work-a-day world, and John to paint and study. Since the artist found himself spending more and more time in field research and sketching, the young couple built a cabin south of Mt. McKinley Park. Here Pitcher finds a ready source of inspiration for his paintings. However, such is the scope of his dedication and desire to learn that he also makes frequent sorties into different areas of the state to study and sketch, thereby enhancing his range of knowledge of Alaskan bird and plant life. A direct dividend of these excursions is a forthcoming addition to the Alaskan Series, the American "Bald Eagle."

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"THE PRISON:" A VILLAGE VIEW OF HOSPITAL CARE

Michael S. Cline, Ph. D.

You know what we call this hospital back home? We call it the prison. We sure don't like to come here because they treat us just like we're in jail.

In contrast to this view stated by an Eskimo person from a remote Alaskan village was that of a young white doctor who worked in that hospital:

The trouble with these natives is that they don't do what we tell them. As long as we have them in the hospital we can control them, but after that it's something else.

The intent of this paper is to present a villagers' view of hospital care and to identify precipitating factors. This view does not particularly include the responses of the medical people to the many frustrations they feel, although this has been described in many other contexts (Goffman 1961, Taylor 1970).

BACKGROUND

Located in a bush village in the interior of Alaska the small, 26 bed Public Health Service (PHS) hospital referred to above serves Indians, Eskimos, and itinerant whites from more than 20 surrounding villages. It is one of seven hospitals in Alaska charged with the responsibility for meeting the health needs of Alaskan Natives.¹ There is no charge for care and transportation to people of one-fourth or more "native" blood.² Doctors and nurses visit outlying villages within the service unit two or three times a year for a day or two and give examinations, diagnoses, and treatment. Apart from these visits people who are ill must come to the hospital. Villagers say they go to the hospital doctor because:

We don't have any other choice — there are no other doctors here and we don't have the money to fly from the village to Fairbanks to see a doctor every time somebody gets sick.

About the author . . .

Michael S. Cline is a Team Leader for the Alaska Rural Teacher Training Corps in Noorvik, Alaska. He received his Ph.D. in Educational Foundations from the University of Oregon in 1972. At Oregon he worked with Harry F. Wolcott in education and anthropology. While researching his dissertation: *The Impact of Formal Education Upon the Nunamiut Eskimos of Anaktuvuk Pass, Alaska: A Case Study* Dr. Cline became interested in Public Health Service care. He has lived and worked in Alaskan bush villages for seven years.

¹\$17 million was expended in Alaska by the PHS in 1968 on health care (Federal Field Committee for Development Planning in Alaska, 1968).

²"Native," a common Bureau of Indian Affairs term, refers to people whose ancestry is at least one-fourth Eskimo, Indian, or Aleut.

We've always done it this way. PHS is where we're supposed to go.

Of the 46 hospital employees, 26 are local native people. These people do the secretarial, janitorial, cooking, laundry, and maintenance chores and, with few exceptions, they have little direct contact with the patients.

The white "outside" employees have all the prestigious staff positions. With the exception of the maintenance and administrative personnel, section heads are directly responsible for patient care. Career nurses and other white employees typically remain here for less than five years, then transfer to another location. Apparently career PHS doctors do not choose to be stationed in small rural hospitals. Most doctors assigned to this hospital are fresh from medical school, put in their two years with the PHS in place of joining the armed services, then leave PHS and Alaska as well.

Generally the white hospital employees keep to themselves, remaining near the housing provided them adjacent to the hospital. Participation in village activities is sporadic and visiting native homes practically never occurs. Though there is dialogue between white and native employees in the hospital, after work hours the two groups return to their respective domains living, as it were, in separate worlds.

I have lived in the service unit described above for five years and in three different villages. I did not interview all the people in all the villages I was in, but the views expressed represent majority opinion. Comments such as expressed in the paper are common topics of conversation in the village — in fact, that is what led me to explore the subject. Negative comments were frequent and often vehement; positive statements were rare. Nearly everyone I interviewed had a negative view of the way patients are treated in this hospital. At the same time they recognize the benefits of modern medicine and desire them. The apparent problem is, in serving the patient's medical needs the hospital ignores his cultural and psychological needs, which works in conflict with the very cure they are attempting to bring about.

HOSPITAL CARE

The hospital serves two groups of people: local residents are treated in "clinic" and sometimes hospitalized; people from other villages come to the hospital on doctors' orders and reside there until they return home.

The following is a patient's description of his trip to and ensuing stay in the hospital. In most cases, such as this one, the PHS assumes responsibility for a patient's travel to the hospital as well as his stay there.

Well, my stomach has been bothering me for a long time. I can't sleep at night and when I eat it hurts more so the aide radioed the doctor (200 miles distant). The doctor sent some medicine but it didn't do any good. I got worse and the doctor finally ordered me to come to the hospital. They would pay for my fare. I left on the next plane and when we landed in Fairbanks I found out that I would have to spend the night there because no planes went to the hospital until the next day. Someone met me at the plane and we went in a taxi downtown to a hotel. I got kind of scared because I've never stayed in a hotel before. Besides I have friends in Fairbanks but that guy never asked me about that. The hotel man checked me into my room, gave me a key, and said, "It's all yours." Funny room I had — just a bed and a desk, no bathroom. I waited a long time; then I had to ask them where the bathroom was.

The rest of that day I just walked around town, but I didn't go too far because I don't want to get lost from my hotel. Pretty soon I get hungry, but I don't know what to do. Those guys (PHS people) never help me at all. They just let me go. He said they (PHS) would pay for food, but he never gave me any money. I have my own money too but I don't know how to use it for sure, so I just went back to the hotel. It's hard for me to think of how to say things to people in English, especially to people I don't know.

I could call one of my friends on the telephone but I don't know how and I don't want to ask. Everybody is too busy. I have a hard night — can't sleep, really hungry, and my stomach hurts.

Finally in the morning they took me to the airport and I flew to the hospital. The hospital workers met me at the plane and they took me over. When I got there they asked me a lot of questions, then they said I could go down to my room. They gave me hospital clothes (slippers, pajamas, and robe) and told me to take my clothes off. I keep my clothes in a drawer but they kept my parka and told me that I couldn't leave unless the doctor said it was okay.

Now I look just like the other guys in my ward. Everything is so clean here; it smells funny too. Lots of strange noises.

Finally I got to eat something. I was really hungry! The doctor looked at me and took X-rays. Then he told me I would stay there (hospital) and see what my stomach did. They gave me a funny kind of food at first. Then after awhile they said I was okay and I feel some better too. I want to go home then but they keep me here . . . then it really starts to get hard.

When I first got here I told a nurse to tell you (the author) that I was down here. I guess she forgot because a couple of days later I asked again. Still nothing. Finally you come down. (I was told by a villager that my friend was in the hospital and I went immediately. He had been there five days.) Really good to see you — someone I know. I don't know anyone in this place.

Nobody speaks my language in this place except two women workers and I saw one for just a minute. My English isn't too good. I can talk Eskimo way better, but can't use it here. I have to think in a different way — kind of hard for me — I'm not young any more. You know, those other Indian patients, I talk with them all right, but its kind of different. It's really lonely in this place. I don't know why they don't send me to that other PHS hospital in _____. It's not any further and everybody there speaks my language. I have a lot of relatives there too. It would be way better to go there.

There's nothing to do around here. We can only look at old magazines, play cards, or talk. I get no visitors except you. Even other patients who know people in the village don't have many visitors because they don't know we're here. We see a movie only once a week. Nothing else — no radio, no TV. I sure hope I get a letter from home. I miss it. Sometimes I just lie here and think about it — nothing else to do . . . it's hard to get well that way. One old man here told me, "If I'm gonna die I don't wanna do it here. This place isn't good. I want to go home to die."

A lot of poeple in this place treat us like we're not as good as they are. Like some of those nurses, they just push you around. That one at night, she just orders us around like maybe she is the big boss. It makes us mad but we can't do anything about it. Some days the doctor doesn't even come in and look at us. Yesterday he never even talked to me, just others in the room, and our room is small (five bed ward). It's like I'm not even here.

Some of the village people that work here are nice to us. Like that janitor, when he came in here we started talking. Those people are just like us, they don't try to act better than we are. But then the nurse came in and he had to get back to work.

In this place they have regulations for everything we do. We have to get up at 6:30 in the morning. Why? We just lie here then until they bring the breakfast an hour or two later. Then too, at night they turn out the lights at 10 o'clock. We're not sleepy but they do it anyway. When we get visitors they can't stay very long 'cause the nurses kick them out. We just start talking and its time to go. It gets really quiet and lonely in here afterward.

You know, back home we call this place "the prison." We don't like to come down here because they treat us just like we're in jail. I've been to other hospitals and they treat you way different than they do here. It's like we belong to the hospital like these clothes.

The food we get is okay for awhile, but we get tired of it. It doesn't have much taste. Caribou or moose meat once in awhile would be way better.

They never tell us what's wrong with us or when we are going home. Awhile ago that doctor said, "If we don't find anything you can go home in a week." Well, I don't think they found anything. I feel okay now, but they don't send me. Why? I keep telling them I want to go home and they say, "Pretty soon." How long is pretty soon? The doctor said maybe I will leave on Saturday. That's the mail day in our village. If I can't make it straight through I would have to spend three nights in Fairbanks. I sure don't want to do that. I don't think the doctor knows our plane schedule.

The patient left after a three week stay, vowing not to return unless he was "really sick." He was given no diagnosis and was told he was "okay."

The above view was expressed by a resident of a remote Eskimo village. People that live in the village where the hospital is located are also critical of it. They cite instance after instance of what they consider improper treatment. These comments seem to fall into several categories: treatment and care of patients in the hospital; general attitude toward "outside" hospital people and their behavior in the village; and qualifications of the doctors. Each of these is dealt with in greater detail in sections to follow.

Nearly all village outpatients commented about the long waiting periods they must endure when they go to the hospital clinic:

Every time I go down there I have to wait for hours, even to get a shot. It makes me not want to go.

* * * *

You know, there was no one in front of me but I sat in that waiting room for 45 minutes. The doctor saw me there and said, "Wait until the nurses come. If they don't come pretty soon you better go down and remind them. You know how they are." It's not my job to remind nurses. I guess they don't care much about us.

* * * *

No matter how sick you are they make you wait, then they just give you a pill or something and send you home. They don't do anything about your illness. They never check to see how you're doing. When I go back to the hospital they get mad at me and say that I haven't taken my medicine even when I have. Pretty soon I don't want to go back any more but I have to if I want to get well. There's no where else to go (for treatment). I sure don't like being treated like I am a kid or something.

Lack of privacy during hospital care is another concern of villagers.

I got undressed and put on that gown for my pelvic examination. The nurse came in and started to put me into position and I said, "Wait a minute — aren't you going to close the curtains?" There were maintenance men working right outside where they could look in. She closed them and then went out and left the door open so all the men's ward could look in.

The doctor came in and out several times, always leaving the door wide open. He had discussions out in the hall with the other doctor, but he never said anything to me about what he found. Finally at 5:30 I got tired of lying there so I put on my clothes and left.

* * * *

I was in an examining room waiting for the doctor and I could hear everything that was going on in the next examining room — a woman I knew talking about wanting her pregnancy terminated. The door between the rooms had been left open. Lots of times I've heard doctors in the hall discussing patients or even making jokes about them with other employees.

* * * *

The doctor was giving me a pre-natal checkup when all at once in trooped about ten of these health aides they were training. I said, "What's going on here?" He explained they were going to observe the examination — without asking me or anything. I told him, "Oh no they're not!" Janet told me they told her they were going to watch her exam and she was really embarrassed but was too shy to tell them no. They *asked* Susan (a white woman) if she minded if they observed *her* exam, but they sure didn't ask *us*!

Patients often have difficulty in interpreting instructions from nurses and doctors:

After I had been examined the nurses gave me a container and said, "Wash your perineum with phisohex and give a urine sample." I didn't know what that was for sure so I didn't wash at all — but they didn't say anything about it afterwards.

* * * *

The doctors and nurses didn't tell me what they wanted me to do. They just kind of ordered me around

from one room to another but never really said what they were doing. If I understood what they were trying to do I would feel better and then maybe I could help out too.

Communication problems cause frustration to both patients and medical personnel:

When he gave me my medicine the doctor said, "Now I want you to take one of these every four hours until they're *all* gone. Even though you start feeling better, take *all* of it. The medicine won't help you if its in the bottle and then you might get sick again." He didn't have to talk to me like that. I follow instructions. It's just like I was a little kid.

* * * *

My teeth have been bothering me for a long time. Finally they put up a sign saying a dentist was coming and we should sign up if we wanted to see him. I signed the list — the first one to sign. They said they weren't sure what days he would be here. Today I found out he came and left already and they never let me know. It wouldn't be so bad, but my teeth really hurt me.

* * * *

Today I took my daughter to clinic for her checkup she has to have every six months. The doctor asked me if she had gone to Anchorage. I looked at him and asked what he meant. He said, "Didn't anyone ever call you?" They had gotten a telegram two months ago that we should send her to the Anchorage hospital right then for treatment but nobody called to tell us so we never knew.

Patients feel left out concerning the nature of their illnesses and how they are to be treated:

After they took X-rays of my baby I asked if I could see them and they said no. Then I asked what they found in the X-rays and the doctor said they found what they expected to find. But they never told me what that was.

* * * *

Seems like every time I go down there they never tell me what's wrong with me. They just give me some medicine. It's like they think I'm not smart enough to understand what they say or like I don't care. I care all right, but I don't like to keep asking them all the time. It's bad enough just going down there.

* * * *

After my examination they put a cast on my leg and I went home thinking things would be better now. In a couple of days it still hurt real bad so I went back down there and then they told me I wasn't supposed to walk around with that cast.

In discussing the merits of taking pre-natal vitamins a recent mother mentioned to her friends,

Is that what those pills are? They gave me some before my baby was born but I didn't know what they were for so I never took them.

Other patients discuss the superficiality of the examinations they receive:

You know, the last time I was down at the hospital for a checkup the doctor said I was going to have my baby the first of next month. I said, "Next month! Did you look at the date on that chart? You'd better look again. That's the date when my daughter was born *two years ago*. I'm not

due for 2½ months. You sure as hell don't look at the records very carefully."

* * * *

In my examination when the doctor looked in my throat he said my tonsils looked fine . . . I don't even have tonsils! They were removed two years ago and they sure haven't grown back. What kind of doctor is that?

In the spring of 1970 an apparent epidemic struck several of the babies in the village. Women took their children to clinic to receive treatment for the high temperature and the rash which developed. One woman's account of this was as follows:

My one-year-old daughter was sick, running a high fever and broken out with a rash all over her body. I took her to the hospital. They didn't give her any tests or tell me what was wrong with her, but they just gave me some medicine to put on her rash. I used it but after two days it hadn't made any difference in the rash and she continued to run a fever. She was really sick — her fever made her eyes glasseyy and she was completely listless. I saw the doctor's wife and she asked me how my daughter's lice bites were. That medicine they had given me was for lice bites! Boy, that *really* made me mad. We don't have lice here! I took my daughter back down to the hospital and chewed them out. When they still insisted that's what she had and didn't do anything to relieve her fever, I asked for a referral to a doctor in Fairbanks. They refused. I told them, to hell with them, I would take her to a Fairbanks doctor and pay for it myself. I went in and told the administrator too, and then they wanted to give me the referral. But I just cussed them out and refused. I took her to a *real* doctor and he took tests and found that she had a virus infection. He prescribed some medicine which made her feel better right away. I got the bill right then and paid it myself. With these guys here, they'd let my baby die before they'd do anything for her. It seemed pretty funny that even after I came back and told them that those "lice bites" were caused by a virus, they still told those other women their babies had lice bites. But now it seems every baby that gets sick they say has a virus infection.

Villagers say that the hospital assumes the responsibility of family planning for native people. A native secretary working at the hospital revealed:

They told me to schedule a "family planning" appointment for every native woman of childbearing age — married or single. I sure didn't make one for myself. They get you in there and you come out with an IUD (Intrauterine Device) whether you want one or not!

Another woman commented:

After I had my second baby that doctor told me it wouldn't be good for me to have any more kids — like I might die or something — and he put in an IUD. It really worried me until I found out that's what they tell just about everybody that's had two babies.

A medical student observing at the hospital related this incident:

The doctor examined this woman who was having some bladder trouble. He asked her how many kids she'd had and when she said, "Two," he told her she shouldn't get pregnant again and if she did he'd have to do a hysterectomy. Afterward he told me that wasn't needed medically, but it sure would keep her from having more kids.

A high school girl working at the hospital under the National Youth Corps program said that twice they had tried to give her a three months supply of birth control pills which she had not requested.

In one village within the hospital's service unit it was common knowledge that the PHS doctor had inserted intrauterine devices in all but one of the women of child-bearing age. When the doctor arrived in the village for his biyearly visit, his first words to me as he got off the plane were, "Where's that Carol? I want to get one of these IUD's in her before she has another kid.

It was questionable whether or not other village women with IUD's had much to say about their insertion. One husband commented:

Yeah, I think we'd like to have one more (child) all right, but she's got that "thing" in there and she's afraid to ask the doctor to take it out.

"OUTSIDE" HOSPITAL EMPLOYEES

Villagers often comment on the lack of participation in village affairs by hospital personnel:

Those hospital people (nurses, doctors, and other "outside" employees) must not like it here. They don't do anything with the people except in the hospital. They never visit (in the homes) and they don't really know us. No wonder its hard to talk to them when we have to go down there. They might as well live a hundred miles away.

Behavior of villagers employed in the hospital is often contrasted with that of the white employees:

People from here know us and they look out for us when we're in the hospital. When I was out in the hall in that hospital gown I waited a long time for the doctor to see me. I was really sick, too. Ted (a man from the village) finally went to that doctor and said, "How long are you going to keep her waiting out there in the hall? She'll be dead before you ever see her!" Then they took me in right away.

DOCTORS' QUALIFICATIONS

Patients frequently comment on the qualifications of two young doctors serving in the hospital. Called "doctor" by most, some people refer to them as "interns."

They aren't real doctors down there. They have to get some experience and they're getting it on us! I bet they don't even have their licenses.

* * * *

Well those interns didn't find anything wrong with me again. But they're just young interns, not real doctors yet. What can you expect? When I have something serious I go to a *real* doctor in Fairbanks.

The village people felt so strongly about this issue that in the fall of 1971 the local Native Association drew up the following resolution and

submitted it to the area convention of the Alaska Federation of Natives:

WHEREAS the Alaska Native Service hospital is the only medical facility locally available to the native community of _____, and

WHEREAS the stated purpose of the ANS hospital is for meeting the medical needs of the native people,

NOW THEREFORE be it resolved that the doctors in that hospital be required to hold licenses to practice medicine in the State of Alaska and that they meet the standards set up by the A.M.A..

AND let it be further resolved that the personnel, facilities, and practices of the ANS hospital be required to meet A.M.A. standards,

AND let it be further resolved that any personnel not licensed as doctors not be referred to as such, but be called by terms appropriate to their training.

Most of the younger people living in the village feel that there is a vast difference between the way PHS treats patients and the way a private clinic does:

Those PHS doctors would never be able to treat their patients this way in a regular clinic or hospital where the people pay for their services. No one would ever come back. They wouldn't put up with this crap. The way it is here they don't really have any choice. The doctors *have* to treat them and they *have* to put up with their treatment. Who can afford \$44 to go to Fairbanks plus the doctor bills?

* * * *

Those guys just think the natives are too damned dumb! They don't care about them. Regular doctors can't act that way, otherwise they wouldn't have any patients.

ANALYSIS

Along with the Bureau of Indian Affairs the Public Health Service probably receives more criticism from Native Alaskans than any other agency in Alaska. Though life expectancy has been extended by twenty years, infant mortality has been sliced in half, and tuberculosis has been controlled,³ PHS patients are critical of hospital care. Because the medical treatment process dehumanizes them they do not receive it positively. Recalcitrant patients resist the dominant, controlling position of the agency and find subtle ways to rebel. As Goffman expresses, "Whenever worlds are laid on underlives develop" (1961:305). Patients "forget to take their medicine on time. They are critical of treatment received, but rarely within the hospital — typical behavior even in white middle class hospitals (Levine 1971, Taylor 1970). When rigid rules are established patients find ways of subverting them. In turn,

³Federal Field Committee for Development Planning in Alaska, 1968, pp. 19-21.

⁴Carol Taylor (1970:19-21) and Irving Goffman (1961) provide good accounts of hospital culture.

some hospital employees feel compelled to control patients' behavior even further — they will make patients well "in spite of themselves."

Conflict between an agency and its constituency is not new in Alaska (Jones 1969, Davis 1969, Cline 1972). The PHS hospital, designed in white urban society, meeting white middle class standards, has been transposed from one cultural context to another. Dealing mainly with physical ailments, patients are largely disregarded as social entities with their own standards and expectations. They are forced to conform to the values and practices of the hospital and its white controlling employees.

Undoubtedly most hospital employees do care for the patients they serve, but they too are met with many frustrations. Large numbers of patients must be handled in small, seemingly inadequate facilities. The bureaucracy they represent must be served and a culture of their own must be maintained.⁴ Adjustments to the harshness of the Alaskan climate and geography may present difficulty. Living in a small village and dealing with people who do not share their values may create further frustration. It is possible that villagers may receive misplaced blame for some of these frustrations which further widens the communication gap which is imposed by the institution they represent.

The answer, if indeed there is one, seems to lie not in merely substituting hospital values for community ones, but in establishing meaningful dialogue between the hospital and its constituency in place of the one-way process which now occurs. This would not mean abandoning modern health practices such as cleanliness, but rather focusing on the more human aspects of medicine — in the case of doctors and nurses, treating each patient as a person, not just a "disease package" (Jourard 1971:189).

As is perhaps universally true, outsiders (hospital employees) are viewed suspiciously by villagers. A significant element in this context is that these people are not a part of the system of social controls operating within the village. They are not vulnerable from that standpoint since they choose not to submit themselves to local control. Yet they do live in the village; this leaves only their job performances to be critical of as a medium of control. One often hears talk in the village, "I'm just waiting for that guy (hospital employee) to make a mistake. We want to get rid of him." (The same holds true of disliked school teachers.)

Most white workers are sent to the village hospital because of their professional qualifications rather than because of an inherent interest in the people with whom they will be working. With but one or two exceptions these people do their jobs in relative isolation both from the patients and from

the village; the bureaucracy they represent implicitly sanctions their behavior by fulfilling most of their needs on the hospital grounds.

To become more effective and to deal with the many criticisms employees need to be made aware of the bicultural setting in which they are located both before they arrive and while they are in the village. Selecting employees who desire a village environment is preferable to selection of those who come merely to fulfill military obligations, get a promotion, or for adventure. Once on site, interaction should be encouraged in both formal and informal ways, e.g., decentralized housing. True interest, however, must come from within the individual and even such means could not force unwilling personnel to interact (Cline 1972:291-2). Further, personnel should be able to live with cognitive dissonance with respect to cross cultural interaction.

Interaction may help employees to become more sensitive to the needs of the patient rather than treating him in a stereotyped manner. The "these people" syndrome is commonly held by hospital employees who have little actual knowledge of the people they serve, yet are willing to generalize on what little they do know. They have stereotyped groups without knowing individuals very well.

Jourard describes such stereotyped interpersonal behavior as "character armor:"

... it serves the function of stifling spontaneity in the person and protecting him from possible hurt coming from the outside ... Character armor is acquired in situations marked by anxiety and it protects a person from recurrences of anxiety and from guilt provoking impulses and actions (1971:180).

Character armor may be another term for "bedside manner" — even the term implies a stereotyped approach. This role conception does not particularly depend upon the patient's response for the way it is played. Medical personnel don their character armor and become impervious to responses by the patients. Further, patients are not led to disclose *their* real feelings for they recognize the stereotyped approach and find it inappropriate both in the hospital and in their culture. Therefore, dialogue does not occur and often patients do not react in the manner the hospital staff might desire. Instead of recognizing this as interpersonal failure and altering their approaches, hospital employees then divert their frustration toward others. Anthropologist George Foster describes this:

When clients, whether students or peasant villagers, fail to respond in the way teachers or technical specialists feel they should, the professionals tell themselves that their annoyance and disappointment are due to the fact that the interests of the client group members are jeopardized. (The patient does not take his medicine so the nurse is angry

"because he is only hurting himself.") Their anger is, in fact, due largely to a sense of personal failure, but it is diverted toward others, since almost all people are reluctant to admit that they have not done as well as they would have wished. The student or villager may or may not be jeopardizing his own best interests, but by failing to perform as the situation seems to dictate, he is certainly threatening the interests of the teacher or change agent (1969:125).

The patients are therefore blamed for the failures of hospital personnel. This may be a reason for the lack of hospital-village interaction on off-duty hours. Doctors and nurses feel uncomfortable so they are led to interact primarily with their "own kind." It becomes "we" against "them" and an "enclave attitude" develops. Hippler states that this attitude "... embitters many local people and suggests condescension and attitudes of superiority. ..." (1969:28). Patients in turn are critical and, when they return home, have no positive reason to interact with medical personnel and many negative reasons for not doing so.

Perhaps because the patients are only summarily known, little explanation of cause and cure of illness is given. The patient is thus kept in the dark which further aggravates his fears, maintains the barrier, and reasserts hospital superiority. Apparently behavior of doctors and nurses is motivated by the expectation that the native patient will not or cannot understand and help in the treatment process. Patients have a right to a full explanation of the perceived nature of their illnesses and treatments in terms they can understand. If doctors or nurses have difficulty doing this they might get villagers to assist them. Perhaps each patient from an outlying area might have a villager as an advocate-friend to visit with daily and to act on his behalf, helping to write letters, advising on hospital procedure, and answering questions. Local people might be paid for the time they spend doing this task.

While he is in the hospital a patient's stay could be made more enjoyable by individualizing his care to a greater degree. Schedules could be made more flexible and room decor could be altered to reflect more cultural interest. More recreational opportunities need to be offered: radios, 8mm movies, TV via video tapes, audio tape recorders, and current magazines of interest to patients. Arts and crafts could be encouraged among those capable of doing so. Older patients might make audio tapes of stories, etc., for others to listen to either in their native language or English. Some patients might be able to take on minor responsibilities in the hospital such as visiting other patients.

Outpatients might also receive more personal treatment. As in "regular" clinics they might call for an appointment which could avoid long waiting

periods. Examinations need to be given confidentially and in a professional manner. Once illness has been diagnosed the patient should be informed.

The director of the Public Health Service in Alaska, Dr. John F. Lee, has stated that eventually Alaskan Natives should administer their own health programs:

Most assuredly, the time will come when Alaska Natives will be able to gather the manpower and other resources to administer their programs under their own management. It is our responsibility to give them every possible assistance along this line (1972:1).

As a step in this direction, perhaps a policy-making board consisting of local people meeting locally could serve to guide hospital operation and serve as a buffer between the hospital and the communities it serves. Although native village boards and councils seem notoriously ineffective to the white man, most villagers now feel they have no voice in treatment of patients; this board could serve to establish dialogue, a necessary first step to deal with the antagonistic feelings which exist.

These largely external changes will have little lasting effect unless PHS alters its policies to attract medical people with sensitivity to and respect for values of another culture. Further, these people need to be able to translate this sensitivity and respect into hospital behavior which may be different from that which is appropriate in middle class hospitals. For example, instead of bustling in demanding "lights out" at ten o'clock, the nurse might suggest to a native man, "Maybe you would like to turn this light out when you feel like going to sleep."

Ultimately, more humanistic treatment in hospital practices and procedures will come about when villagers and hospital personnel can meaningfully exchange ideas and points of view as equals and this exchange is translated into action in the hospital. Up to this point native people have had little opportunity to do this and thus they have given their criticisms to each other quite apart from the hospital. Though most villagers are dissatisfied with certain aspects of the medical care they receive they are not now demanding great concessions from the hospital; they are asking to be treated as human beings as well as "disease packages." The degree to which the PHS accommodates this need by offering humanized treatment will be the degree to which they can alter the image of "the prison" which many now carry in their minds.

BIBLIOGRAPHY

Cline, Michael S.

1972 The Impact of Formal Education Upon The Nunamiut Eskimos of Anaktuvuk Pass, Alaska: A Case Study. Eugene: University of Oregon. Unpublished dissertation.

Davis, Nancy Y.

1969 A Village View of Agencies. Paper presented at the Twentieth Alaskan Science Conference of the American Association for the Advancement of Science. College: August 26, 1969.

Federal Field Committee for Development Planning in Alaska

1968 Alaska Natives and the Land. Washington: U.S. Government Printing Office.

Foster, George M.

1969 Applied Anthropology. Boston: Little, Brown and Company.

Goffman, Ervin

1961 Asylums: Essays and the Social Situation of Mental Patients and Other Inmates. Garden City, New York: Anchor Books.

Hippler, Arthur E.

1969 Barrow and Kotzebue: An Exploratory Comparison of Acculturation and Education in Two Large Northwestern Alaska Villages. Minneapolis: University of Minnesota, Training Center for Community Programs.

Jones, Dorothy M.

1969 Agency-Community Conflict. Paper presented at the Twentieth Alaskan Science Conference of the American Association for the Advancement of Science. College: August 26, 1969.

Jourard, Sidney M.

1971 The Transparent Self. New York: Van Nostrand Reinhold Company.

Lee, John F.

1972 The Alaska Native Claims Settlement Act and its Impact on A.A.N.H.S. Employees. Anchorage: Mukluk Telegraph, U.S. Public Health Service, Volume 16, Jan-Feb 1972, No. 1.

Levine, Myrna E.

1971 The Intransigent Patient. Clinical Nursing and Drugs in Current Use. New York: American Journal of Nursing.

Taylor, Carol

1970 In Horizontal Orbit, Hospitals and the Cult of Efficiency, New York: Holt Rinehart and Winston.

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COMMENTARY

The Penal System and Its Prisons

Dr. Michael Cline has presented a profound and rather shaking commentary on health delivery and its perception. Dr. Cline, an eminently qualified observer, has approached the problem of health delivery from a too often neglected viewpoint, that is, the viewpoint of the feelings and perceptions of the recipients. What is important from Dr. Cline's article is not what has transpired, but the patients view of what has transpired.

While this article is directed towards one hospital and one particular government agency it should give all physicians cause to review their own practices and manners. The language barrier removed, Providence Hospital is no less formidable to the homesteader from Homer or the fisherman from Cordova than is the Tanana Hospital to the villagers it serves. Nor indeed is the Homer Hospital any less stringent in its multiple rules and regulations designed primarily for the comfort and convenience of staff with little regard to the feelings and needs of the patients. It is a callous physician indeed who cannot remember the terrified, bewildered patient in the great university towers of learning or the confused old man in a vast V.A. ward or the dehumanizing clinics and emergency rooms of the big city general hospitals. As medical and health institutions have become complex, big and efficient, they have acquired their own dehumanized personalities. It is too easy for the individual physician or nurse to carefully tuck away his own feelings and ethics and adopt those of the group or institution. Private practice, once the bastion of personalized individually concerned service, is slowly losing even this redeeming virtue as physicians combine and groups grow.

The Alaska Native Health Service represents an end-stage development of the dehumanized, amoral, group-think institution. It is a bad example which we should all know and avoid emulating. The Native care system directed by cloistered, massive and self-serving bureaucracy following patronizing and paternalistic guidelines, bound by rigid procedure manuals and viewing its beneficiaries with possessive condescension, does indeed resemble a penal system. Add to this the

knee-jerk paranoia and the siege mentality which prevails and it is doubtful if any real and meaningful changes can come from within the system itself.

Yet within the dismal framework of the Alaska Native Health Service system are many bright and shining stars. Many, many physicians in the Alaska Native Medical Center in Anchorage and the scattered bush hospitals have formed long and close personal relationships with the people that they have served. Physicians, nurses and other personnel of the Native Service have been vital, respected and even loved members of the communities in which they have lived and served. Some, a disappointing few, have chosen to remain in these communities and have made their lives and homes among the people of rural Alaska. It is discouraging that there is no real incentive to entice physicians and other people who are introduced to rural Alaska by the Native Health Service to remain and continue practicing in the rural areas. Salaries, although not marginal, are certainly not competitive. Incentive benefits are notably lacking. Though no solution to the humanization of medical care, a great step could be taken if physicians and others could be attracted and retained in rural Alaska for extended periods of time.

To humanize the Alaska Native Health Service system is possible but improbable. To do this, the Alaska Native Health Service would have to disband the area office, give total, complete and autonomous control of the regional bush hospitals to locally chosen, responsible hospital boards, and to open up all Alaska Native Health Service hospitals to an open staff, and in short, to let fresh air into the musty halls and to wash the windows so people can see out as well as in.

The problems which Dr. Cline has so ably delineated are indeed complex and pervasive. Perhaps there is no solution but this should not prevent each physician, nurse or other health worker from continually trying to be a little more human and a little less stingy with their feelings each day.

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High-level anticholinergic activity is maintained all day and all night in most patients with only two tablets every eight hours.

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The contraindications and precautions applicable to Pro-Banthine 15 mg. should be observed.

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THE CURRENT MANAGEMENT OF MALIGNANCY

I - Cancer of the Breast

Frank Panettiere, M.D.

INTRODUCTION

A fantastic amount of time and money is being expended on cancer research. The average physician has little opportunity to keep abreast of these developments. For this reason, I am attempting to give an overview of current concepts in the management of the problems of patients with malignant disorders.

This series of articles is not intended to provide guidelines for the management of any specific patient. Such therapy should be individualized. Ideally, it should result from a coordinated team effort, making use of the best talents of the pathologist, surgeon, radiologist, and medical oncologist.

In Alaska, there is enough expertise that a patient's prognosis should rarely benefit by referral "outside". It is tragic how often a patient whose life expectancy is so limited is sent away to spend a large fraction of his remaining time far from family and friends. Such a referral to a medical center helps cancer research when the patient is included in a published series. However, unequivocal benefit to the patient himself occurs only in rare selected instances. Therefore, in this series of articles, I will make specific mention of such circumstances when they might occur.

I — CANCER OF THE BREAST

Because so many Alaskan physicians have asked me about the management of the patient with cancer of the breast, and because there is so much we can do for her, this series begins with a consideration of that problem.

For years, surgeons have been trained according to the Halsted approach which is to remove with the tumor, as much surrounding tissues and draining nodes as possible. This concept is now in question (1). This is mainly due to Crile's reports of his admittedly unrandomized study wherein patients treated by local excision had the same five year survival as those who received radical operations (2). Bernard Fisher and others have embarked upon a randomized prospective study to compare the standard radical mastectomy with lesser procedures, but it should be years before the results are evident.

However, there are already data to suggest that intensive early therapy is not only more mutilating, but also can impair the patient's resistance to the tumor. There is evidence this is the case whether the treatment consists of extended surgery, or adjunctive radiotherapy or chemotherapy.

Early in the disease, lymph node changes, predominately sinus histiocytosis, are found which reflect increased host resistance against the tumor (3). Removal of such nodes in a radical mastectomy may reduce a patient's own defenses against the tumor.

Post-operative radiotherapy seems to fall in the same category. Even supporters of that modality have to admit that its only *proven* benefit is a decreased incidence of local recurrence without any proven beneficial effect on survival (4). In addition, Stjernsward (5) found that patients who received postmastectomy radiotherapy had significant lymphopenias (lasting at least six months in 13 of 22 patients), depression of responsiveness of the remaining lymphocytes to immune stimulation *in vitro*, and decreased delayed hypersensitivity reactions *in vivo* (especially decreased in the irradiated area).

Adjunctive chemotherapy does not fare any better. Not only has the National Surgical Adjuvant Breast Project found no benefit in postoperative chemotherapy, but they also uncovered a surprisingly high incidence of serious complications (6). In addition, studies on mice whose small mammary adenocarcinomas are treated with 5-fluorouracil indicate that any dose of the drug suppresses immune responsiveness. Low doses actually enhance tumor growth (7).

Therefore, in the initial management of breast cancer, the patient's own resistance against the tumor is impaired by removal of lymph nodes, by postoperative radiotherapy, and by adjunctive chemotherapy. Is there any advantage to immediate "prophylactic" oophorectomy?

Results of the randomized prospective study by the National Surgical Adjuvant Breast Project are unequivocal (8). There is no justification for early oophorectomy.

Late in the disease the rules change. Then, benefits from radiotherapy, chemotherapy, and endocrine manipulations are frequently observed. A partial explanation for this change in effectiveness may lie in the observation that when the disease extent is minimal, the patient's immunologic defenses are active. When the disease becomes extensive, this resistance fades away (9).

*Lt. Col. Panettiere is currently Chief of the Department of Medicine at the USAF Hospital Elmendorf. He is also an Associate Investigator of the Southwest Cancer Chemotherapy Study Group, and a Member of the American Society of Clinical Oncology.

Since radiotherapy and chemotherapy are immunosuppressive, and so attack the patient's own defenses as well as the tumor, they would be better used late, when the immunologic defenses are no longer effective.

For metastatic disease, the initial therapy is usually endocrine manipulation. This is used prior to chemotherapy because generally the response rate is greater, the remissions obtained last longer, and follow-up does not have to be so close as with cytotoxic agents.

In the premenopausal patient, estrogens are frequently important to maintain tumor growth. Therefore oophorectomy is performed with an expected response rate in the range of 25-30%, and lasting at least 6 months (10). It is important to be certain whether the patient does have an objective response to this removal of ovarian estrogens. If she does, then the tumor is sensitive to estrogen withdrawal, and when the tumor recurs, there will be a 50% chance it will respond to removal of adrenal estrogens (11). (If the tumor did not shrink after oophorectomy, there is only approximately a 10% chance it will respond to subsequent adrenal steroid ablation. In such a case, the patient should instead be placed on cytotoxic chemotherapy.) If adrenal ablation is indicated, what form should it take? The data now show that hypophysectomy and adrenalectomy are equally effective (12), and therefore the choice should depend on the available surgical expertise. "Medical adrenalectomy", using high dosage corticosteroids to suppress ACTH and thereby suppress adrenal output including adrenal estrogens, can be used in the patient whose clinical condition would not permit surgery. However, remissions following such medical management do not seem so frequent, so prolonged, or so beneficial as those following surgical ablative procedures.

In the patient whose tumor grows after the menopause, it grows in the *absence* of estrogens. Here, estrogen *administration* can cause regressions in 40% of cases, the progesterones do not seem to add to this effectiveness (13). On the other hand, estrogens *can* sometimes *stimulate* tumor growth. Therefore it frequently is best to treat the patient intensively with high doses of estrogens (e.g. premarin 20 mg I.V. daily), and observe her tumor daily for growth or shrinkage. If tumor size diminishes, continue on oral estrogens. If the tumor seems to be enlarging the patient can be benefited if one immediately starts chemotherapy. At this time of estrogen-stimulated rapid growth, the tumor should have a higher than usual proportion of cells in active division. Therefore a larger than usual fraction of tumor cells will be susceptible to the chemotherapeutic agents which attack cells in mitosis.

In recent years, the trend has been away from the use of androgens in women with breast cancer. These agents have been used in two major ways: (a) for an anti-estrogen effect (perhaps by inhibiting pituitary gonadal-stimulating-hormones), and (b) for an anabolic effect (to "stimulate" the failing bone marrow, increase muscle mass of wasted patients, etc.). However, generally the side effects are not worth the benefits obtained. Consider the woman whose concept of her own femininity has already been assailed by removal of her breast and later by surgical castration. Is it right to expect her to also suffer such side effects of androgen therapy as a masculine deepening of the voice, the development of a beard, and often a difficulty for her to tolerate increase in libido?

After rational endocrine manipulations have been exhausted, chemotherapy should be considered. There are many effective drugs (14). 5-fluorouracil cytoxan, and methotrexate are probably the most frequently used agents, and their effectiveness seems essentially equal — approximately a 30% objective response rate to whatever drug is used first. When any of these individual drugs is used subsequently as a second or third agent, the effectiveness is far less. The best choice among the various drugs should be that with which the physician has the most experience. (Because 5-fluorouracil is effective when given orally (15) and because it probably has the least chance for side effects, it might be the most reasonable first choice.) Unquestionably, the most effective chemotherapeutic approach to breast cancer today is based on the five-drug regimen of Cooper (16). This includes daily oral cytoxan and prednisone and weekly intravenous oncovin, methotrexate, and 5-fluorouracil. The doses he reported were too toxic, but downward modifications of his doses have been used by many groups and there is now general agreement that doses with tolerable toxicity can achieve a 65-70% response rate.

Two special problems, bone marrow invasion and hypercalcemia, deserve brief comments. Bone involvement with marrow invasion occurs frequently in breast cancer. It can be suspected if there is leukoerythroblastosis, the spilling of immature white cells and nucleated red cells into the circulation with their appearance on the blood smears. Because most effective drugs are myelosuppressive, this poses a special problem. The best solution seems to be in the combination of cytoxan and prednisone.

Hypercalcemia should be considered when there is an unexpected deterioration of the patient's sensorium. Clinically the picture often includes a recent severe increase in bone pain, anorexia, nausea, dehydration, weakness, somnolence, and disorientation (17). If the

problem is suspected and appropriately treated, she may gain many months of useful life.

The therapy of hypercalcemia may include several approaches (18). Phosphates bind calcium. Therefore oral phosphates can cause calcium deposition in the gastrointestinal tract, and intravenous phosphates result in extravascular deposition. Sodium and calcium seem to share a common renal tubular absorption mechanism. Therefore, if we flood the mechanism with several liters of saline, we can cause a calcium diuresis. Furosemide can greatly increase this effect, and so is frequently given in conjunction with the saline.

Another effective means of lowering serum calcium is by the administration of Mithramycin (19). A single dose of 25 micrograms per kilogram intravenously is usually effective within 24 to 48 hours. This dose is generally safe as it is about one-tenth of the usual antitumor dose. When the effect wears off, repeated doses may be given with the expectation that they too will probably be effective.

Because each patient's circumstances are different, I have avoided making very specific recommendations in this discussion. Many times, patients late in their disease will require surgery or radiotherapy for either palliation or for psychologic benefit. Many patients can find the side effects or the closer follow-up of the most optimal therapy to be for them intolerable and a lesser treatment may be indicated. Nevertheless, I have attempted to give a general overview of what today seems to be the most rational approach to the management of the patient suffering from cancer of the breast.

REFERENCES

1. Humphrey LJ, Hammond WG: Editorial: Treatment of primary breast cancer. *Arch Surg* 104: 260-261, Mar 1972.

2. Crile G: The case for local excision of breast cancer in selected cases. *Lancet* 1: 549-551, Mar 11, 1972.

3. Black MM, Asire AJ: Palpable axillary lymph nodes in cancer of the breast: structural and biologic considerations. *Cancer* 23: 251-259, Feb 1969.

4. Raventos A: Postoperative radiation therapy. *Cancer* 28: 1651-1653, Dec 1971.

5. Stjernsward J: Immunologic changes after radiotherapy for mammary carcinoma. *Ann Inst Pasteur* 122: 883-894, 1972.

6. Cohn I, Slack NH, Fisher B: Complications and toxic manifestations of surgical adjuvant chemotherapy for breast cancer. *Surg Gynec Obstet* 127: 1201-1209, Dec. 1968.

7. Suhrland LG, Benson J, Labelle E: Enhancement of tumor growth and immunosuppression in mice with 5-fluorouracil. *Amer J Med Sci* 263: 209-214, Apr 1972.

8. Radvin RG, Lewison EF, et al: Results of a clinical trial concerning the worth of prophylactic oophorectomy for breast cancer. *Surg Gynec Obstet* 131: 1055-1064, Dec 1970.

9. Southam CM: The immunologic status of patients with nonlymphomatous cancer. *Cancer Res* 28: 1433-1440, Jul 1968.

10. Fracchia AA, Farrow JH, et al: Castration for primary inoperable or recurrent breast carcinoma. *Surg Gynec Obstet* 128: 1226-1234, June 1969.

11. Kennedy BJ: Endocrine therapy of breast cancer. *JAMA* 200: 971-972, June 12, 1967.

12. Fracchia AA, Farrow JH, et al: Hypophysectomy as compared with adrenalectomy in the treatment of advanced carcinoma of the breast. *Surg Gynec Obstet* 133: 241-246, Aug 1971.

13. Ahlmann DL, Hahn RG, Bisel HF: Disseminated breast cancer: evaluation of hormonal therapy utilizing stilbesterol and medrogestone (AY062022) singly and in combination. *Cancer* 30: 651-653, Sept 1962.

14. Fracchia AA, Farrow JH, et al: Systemic chemotherapy for advanced breast cancer. *Cancer* 26: 642-649, Sept 1970.

15. Bateman JR, Pugh RP, et al: 5-fluorouracil given once weekly: comparison of intravenous and oral administration. *Cancer* 28: 907-913, Oct 1971.

16. Cooper RG: Combination chemotherapy in hormone resistant breast cancer. *Proc Amer Assoc Cancer Res* 10: 15, 1969.

17. Galasko CSB, Burn JI: Hypercalcemia in patients with advanced mammary cancer. *Brit Med J* 3: 573-577, 4 Sept 1971.

18. Whang R, Ruffy R, Banfield W, Hill M: Treatment of neoplastic hypercalcemic crisis. *Southern Med J* 65: 758-760, June 1972.

19. Perlia CP, Gubishch NJ, et al: Mithramycin treatment of hypercalcemia. *Cancer* 25: 389-394, Feb 1970.

MAMMOGRAPHY: Boon or Bust?

Maurice J. Coyle, M.D.

"Ah Ha!", trumpets the surgeon triumphant, "you missed another one! This was even *bigger* than the last one!" His voice rings up and down the halls: "Never any doubt in *my* mind! Even my scrub nurse could diagnose it!"

"Thank goodness she reached you in time!", I say admiringly, as I haul out my magnifying glass to review the films. "And, by the way, that's a terrific scrub nurse you've got! How did the surgery go?"

"Not too bad", brow furrowing, "only took four hours. If the flaps take, she'll be half as good as new in no time at all!"

"But seriously," he continued, thinking the joke had passed over my head, "just in case I left anything behind, wonder if you'd touch her up with a little Cobalt. Don't know when, depends on how the graft does."

"I'll have to review these films later, my glasses just fogged up." I turned to confront the surgeon. He's gone! Waving cherrily to our mini-skirted technician, he sprints down the corridor — "Quite a gimmick, those mammograms, yessir, quite a gimmick!"

The above not so hard to imagine scene illustrates one essential point — mammograms, like other tests, must be interpreted in the light of a basic understanding of the technique and its limitations. The purpose of this article is to give all of us involved a better understanding of mammography. My motive here is for self-protection as well as illumination.

The idea of mammography has been around since shortly after the turn of the century, pathologists prior to World War I attempting to study breast detail with radiography. There was a mild resurgence of interest in the early 1930's, but this quickly disappeared because of technique limitations. In the late 1950's and early 60's, Dr. Robert Egan developed a new technique for radiography of the breast, and relatively simple, accurate, reproducible mammograms were made possible. His techniques consisted of using long exposures (6 seconds) of a relatively low energy X-Ray beam, the image being reproduced on extremely fine grain film, preserving detail. There are two routine views (Figures 1. and 2.) craniocaudad and mediolateral. A third view, axillary view, is sometimes used. The technologist must be an extremely meticulous, well-trained person, because of the rather difficult positioning involved. The films obtained are hand-tanked, the



Fig. 1. Cranio — caudad view, patient sitting.



Fig. 2. Medio-Lateral view, patient lying on side.

old-fashioned way, for best preservation of detail. I believe that many, if not most, failures of mammography are due to poor quality radiography — motion of breast, poor positioning, exclusion of part of breast from film, too high energy beam, poor developing, etc. This is unfortunate, because

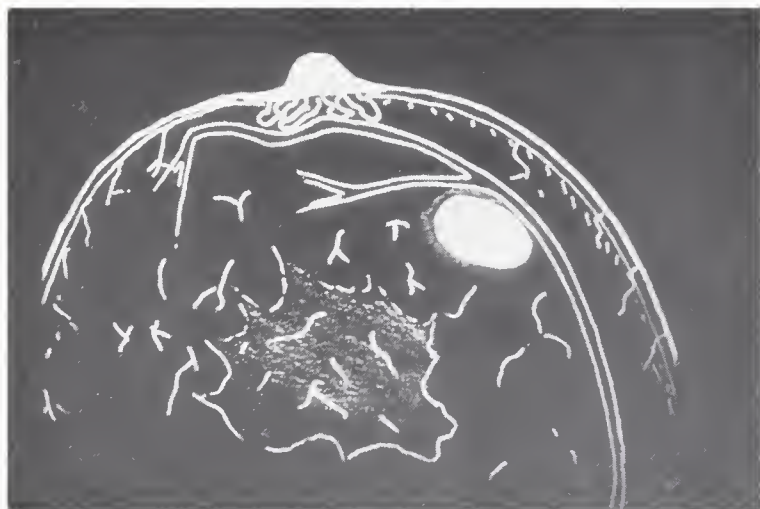


Fig. 3. Typical features of benign lesion.

these factors are ones which *can* be corrected. I believe that a poor quality mammogram is much more detrimental to a patient's care than no mammogram at all, and wish that Radiologists who don't do high-quality mammography would stop doing them.

Besides it being very difficult to obtain high-quality mammograms, it is also, unfortunately, quite difficult to accurately interpret them. I will illustrate this by first briefly describing an enormously over simplified picture of a benign and a malignant lesion. Figure 3. shows an ovoid, smooth-walled, lesion, not infiltrating into surrounding tissues, lying right next to a normal sized vein. There is no skin thickening, nor is there microcalcification. This, of course, is benign. Figure 4., on the other hand, shows a dense, infiltrating lesion, producing skin thickening of the overlying breast as well as nipple retraction. The adjacent vein is seen to be 2 or 3 times enlarged. These are changes of malignancy. Figure 5. shows such a lesion on a mammogram film. If all cases were this clear-cut, there would be no problem. Unfortunately, the malignancy is often-times much smaller, 2-3 millimeters in size, and doesn't exhibit the many characteristics shown on Figure 4. Many times, all that is seen is a small cluster of tiny calcifications, or a vague area of density with slight increased size of veins or slight skin thickening. There are many other limitations, besides the appearance of the primary malignancy itself. I would re-emphasize that the greatest limitation in mammography is poor technique in obtaining the films. If the information is not on the films, were sunk! Another problem is the young breast. The accuracy in diagnosing carcinoma by mammography in patient's under the age of 40, is probably less than 50%. This is because of the dense glandular structure of the breast. In older, post-menopausal women, the breasts become quite fatty, the fat providing a good background for demonstrating dense malignancies. The next most



Fig. 4. Malignant—note infiltrating borders, skin retraction and thickening, and increased vascularity.

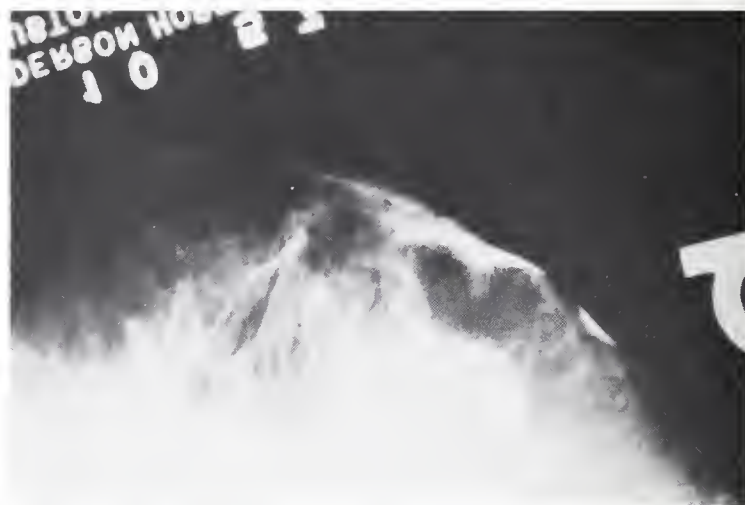


Fig. 5. Mammogram shows obvious malignancy with skin changes.

common problem is fibrocystic disease, the fibrous tissue and cysts serving to obscure malignancy. Very often, patient's with marked fibrocystic disease have breasts which are as dense as those of a young girl, and accuracy suffers considerably. We often are able to partially compensate by obtaining narrow beam cone-down views of suspicious areas, this technique giving us considerably improved detail. Another problem we often encounter is in patients who are unable to remain motionless for 6 seconds, the slightest movement causing considerable blurring of detail, resulting in loss of accuracy. When reporting on a mammogram, I always try to let the referring physician know if underlying breast disease or technical problems have compromised the accuracy of the mammogram examination. I also enclose a sheet (Figure 6.) with guidelines and anatomic sketches. If a suspicious lesion is present, I localize it on the sketches.

The indications for mammography are quite varied. They include: patient's with questionable clinical examinations, patient's with dominant

PATIENT'S NAME: _____

DATE: _____ DOCTOR: _____

- A. A negative X-Ray report should not delay biopsy if a dominant or clinically suspicious mass is present. A significant percentage of cancers are not identified by X-Ray.
- B. A negative report may reinforce clinical impression.
- C. Adenosis and dense breasts may obscure an underlying neoplasm.
- D. False positive reports average 6 — 10%.

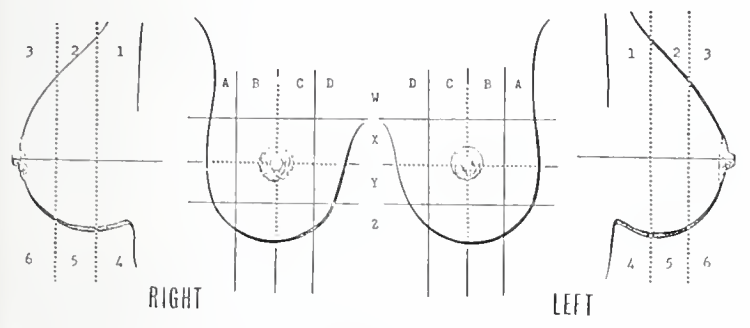


Fig. 6. Sheet accompanying mammogram report.

masses who may have bilateral primary malignancies, nipple retraction or discharge, vague breast pain and tenderness, patient's with massive breasts in whom accurate clinical examinations are not possible, searching for a primary site of a malignant tumor, following the remaining breast following radical mastectomy, and keeping pathologists on their toes. Mammography is also being used in mass screening for detection of breast carcinoma. Mammography of a resected specimen is also quite valuable in making sure a biopsy includes the area of suspicion, and to be sure the pathologist examines the area of suspicion. This may be important since malignancies are sometimes found in mammography which only measure 2-3 millimeters. The radiographs can be easily obtained before the specimen is examined by the pathologist, requiring only 2-3 minutes of extra anesthesia time.

How accurate is mammography? This is a difficult question to answer, since it is an examination that is difficult to perform as well as to interpret. This accounts for the variable results one can find in the literature. At its best, mammography is reasonably impressive. Overall, about 10-15% of carcinomas are not diagnosed on mammography. These are usually in patient's who are under 40 years old, or who have severe concomitant fibrocystic disease. Our false-positive error is about 10%. We are frequently able to diagnose malignancy on mammography when clinical examination of the breast is completely negative, and sometimes find malignancy in the

breast which was not clinically suspicious. I believe that mammography should be viewed as a supplement to clinical examination, rather than competitive. If clinical examination and mammography are combined, the accuracy for diagnoses of breast cancer is greater than 90%.

Carcinoma of the breast, the most common malignancy in women, has had no improvement in survival in many years. There is no breakthrough on the threshold in surgical techniques, radiation therapy, or chemotherapy. For these reasons the idea of mass screening for breast malignancies has become more and more appealing. This non-invasive low dose examination technique is not objectionable to the patients, and seems to be resulting in earlier diagnosis of smaller tumors, with some evidence of better survival rates. The largest study being evaluated is a group of 62,000 women in a pre-paid medical plan in New York City. These have been divided into equal groups. All of the women are over 40 years of age. One-half of the group, the study group, has annual mammograms and clinical breast examination. The results of this group, compared to the control group, seem to indicate that the malignancies found are earlier, with less axillary adenopathy, and improved survival rates. This continuing study is presently adopting a position of "cautious optimism".

By way of concluding, I would like to make several points:

1. High-quality mammograms are difficult to obtain. Please don't confuse the slam, bam - thank you ma'am - run 'em through the processor - quickie chest film type radiography with the obtaining of high-detail mammogram films. The technologist must be highly trained and motivated.
2. Mammograms are difficult to interpret. We literally use a magnifying glass to detect malignancy, which can be too easily obscured, or at least partially obscured by underlying disease.
3. It is important that a team approach to this problem be established and preserved. The fact that the clinician can palpate a malignancy that we can't find on mammography is not important. Nor is it important that we often see malignancies and other lesions that cannot be clinically palpated. What is important, is that, combined, we can diagnose malignancy earlier and better, and there is evidence that this results in improved survivals. And that's what it's really all about.

FAIRVIEW FAMILY SERVICE CENTER

William R. De'ak, M.D.

The use of new types of health workers, preventive medicine, and implementation of the problem oriented medical record form the core of practice philosophy at the Fairview Family Service Center on East Tenth avenue in Anchorage. The Clinic opened its doors in late February 1973, under the direction of the Lake Otis Clinic Inc. with the assistance of a grant from the 314 (e) Family Health Center Program. The clinic is integrally tied in with the Borough Health Department services at the same location.

The Family Health Center Program is a direct result of the recommendation of the Presidential Committee on the cost of health care (1967) which recommended national experimentation on the application of prepaid group practices in multiple settings. Legislation was forthcoming to support this effort after it was promoted by President Nixon in his Health Message in October 1971. The responsibility of the Fairview Family Service Center under this grant is to develop a prepaid care system which will serve a broad cross section of people and which is based upon clinical preventive medicine. The funds specifically support a portion of the administrative and professional staffing and some of the costs to "medically indigent" families. The grant supports these efforts for a maximum of three years, by which time the Center must be self-supporting.

The use of physician's assistants (PA) in the Clinic is based upon the need to reduce costs and maximize efficiency while maintaining high quality. (Two Medex are presently employed by the Clinic, Mr. Joseph Marzucco and Mr. Michael Grogan). More important than these pragmatic considerations, however, is the conviction that the use of physician's assistants can enhance the quality of care in a large volume practice. The PA is frequently able to spend more time with the patient than could a single physician practitioner. By performing many of the time-consuming routine histories and physicals and treating common problems — such as URI's, lacerations, etc. — The PA permits the physician to concentrate on difficult and complex problems. Thus it is the PA who sees most of the patients initially for acute complaints. If minor problems, treatment will frequently be initiated without immediate

consultation with the physician unless the patient requests it. If a problem is encountered which requires further study, the workup is frequently begun by the physician's assistant. In both these situations the PA follows standard treatment or workup protocols.

Another new health worker practicing in the clinic is a Pediatric Nurse Practitioner, Miss Ruthann Saxton, a graduate of the Mayo Clinic program. Her responsibilities include well-child care, physical exams of children and first encounter with ill children. She is a physician's assistant specializing in pediatric care.

In either the pediatric or adult group, once a history and physical has been completed, the physician reviews the data with the patient and formulates a list of problems. It is at this point that various pertinent physical findings are double checked. A heart murmur may have been heard, or an abdominal mass detected. The physician can then concentrate on these findings without the necessity of performing the whole examination.

Essential to the proper supervision and quality control when using physician's assistants is the audit of a problem oriented medical record. The PA is admonished to identify problems only at the level of what is known for sure. Thus, dysuria is never identified as ? UTI or Probable UTI. The audit, usually the next day, evaluates whether adequate data was gathered, proper studies were ordered, and appropriate therapy instituted. With adequate protocols and good communication between physician and PA, this audit process is rapid and frequently a good learning experience for the PA and sometimes the physician. The structure of the problem oriented medical record, which breaks the data down into the "SOAP" format* permits rapid retrieval of information. Our practice at the Clinic of dictating most notes adds significantly to the value of the record and our ability to retrieve information rapidly.

In our commitment to primary care we have not forgotten the role that others outside the Clinic can play. The interaction which the Borough Public Health Nurses and Social Work Staff has added an important dimension to our patient care capabilities. Nor have we forgotten the need to ensure high quality in the major specialty areas. Most of our protocols have been reviewed by appropriate specialists in the Anchorage area. Internal medicine, dermatology and obstetrical clinics are held at the Fairview Clinic every two

*Problem Number and title

S — Subjective data

O — Objective data (Px and lab)

A — Assessment of the problem

P — Plans for further diagnostic studies, treatment measures, and patient education.

weeks. Most other specialties are available on an as needed consultation basis.

Although many new ideas are being implemented at the Fairview Family Service Center, the commitment to preventive medicine is the one of which we are most proud. Dr. Carolyn Brown has joined the Clinic as a practicing clinician but one who has a major commitment to developing practical and effective means to influence patients to care for their own health through education.

None of these approaches are unique but, in combination, provide an exciting practice venture. The discipline of the problem oriented medical record, the stimulation and challenge of working with physician's assistants, and the application of preventive medicine concepts will have at least a two year trial at Fairview. By the end of that time we hope to have proven their effectiveness in improving services to patients and reducing health care costs over-all.

LOUIS SALAZAR, M.D.

1904 - 1972

On November 24, 1972 Dr. Louis Salazar, longtime Ketchikan physician, died quietly at home. Dr. Salazar was born January 8, 1904 in New York City. He graduated from Mt. Vernon College, New York, and received his medical degree from the University deLausanne, Switzerland, in 1929. Post graduate studies followed at Wesley Hospital, Chicago, and St. Louis University. He came to Seattle in 1931 and completed a year of internship at Cabrini Hospital and remained as house physician for two more years.

In March 1934, Dr. Salazar accepted a position with Alaska Native Health Service in the capacity of director of clinics and hospitals in Craig, Klawock, Hydaburg, Kanakanak, Bethel,

Tenana and Juneau. In 1943 he came to Ketchikan as physician to the native population in this area. In 1945 he entered private practice with Dr. Ralph Carr.

Dr. Salazar served on various hospital committees and had the distinction of being named Practitioner Of The Year by his associates. He became Chief of Staff of Ketchikan General Hospital in 1960 and held the office until 1964. He was President of the Alaska State Medical Association in 1956-57. He was a member of the American Medical Association, the Alaska State Medical Association, the American Public Health and the Association of Military Surgeons.

PRESIDENT'S PAGE

Glenn B. Crawford, M.D.

The effectiveness of the Alaska State Medical Association is directly related to the vigor and vitality of its component committees. It is the committee work which provides the opportunity for the general membership to actively participate in the Association and to influence its direction and position. It may be more appropriate to look to the committee activities rather than to the day to day staff services when evaluating the benefits and importance of Association membership and support.

Many of the resolutions prepared and passed at the annual meeting are mandates for committee action and response. A recent example of this was Resolution No. 31-73, Continuing Education, which will require considerable study and evaluation by the Education Committee prior to being implemented and becoming an on-going function and activity of the Association.

The office of the Alaska State Medical Association receives many inquiries and requests that require study and thoughtful evaluation in order to arrive at a definitive and defensible response. This is best accomplished by reference to the appropriate committees. There have been two recent examples of this. The first was a request by the State Division of Corrections for recommendations on health services to be provided prisoners. Another was a request for data on the frequency with which physicians see and manage drug abuse problems in their private offices. Both of these requests have been referred to committees.

Committees also initiate activities and studies which are presented to the general membership as motions or resolutions for acceptance or rejection or amendment.

The elected officers have the responsibility of appointing and organizing committees, both standing and ad hoc, and in assisting in the development and definition of their activities. During the past few years, it has become more and more apparent that there must be continuity and depth of committee leadership. It is with this awareness that considerable thought and attention has been given to committee appointments for the coming year. Every effort is made to take advantage of the specific interests of the members and to relate the results of the committee poll to the appointments. This must be done in such a way as to provide representation of different philosophies and points of view and, as much as possible, to assure that the committee composition

will reflect a cross-section of the membership. If this is accomplished properly, there is generally acceptance of committee reports and decisions. Consideration must be given, whenever possible, to limiting committee membership to single communities. This allows for more frequent meetings, easier communication, and input from the non-members in the immediate area.

Despite a greatly reduced office, there will continue to be staff support of committee work including the recording of minutes, typing and distribution of reports and assistance in gathering and accumulating data and background material. In the future, consideration must be given to budgeting for committee expenses from the general revenues and for actively seeking and obtaining project funding from outside sources. With the availability of financial support, we should be able to provide travel money for meetings and to consider other alternatives such as conference telephone meetings.

On September 22, there will be a meeting of the officers, councilors, and committee chairmen and interested members to review and establish priorities for the coming year. These priorities will form the bulk of the specific committee assignments. A sense of purpose should be achieved in relating the activities of the various committees to each other and to the Association as a whole. A report of this meeting will be mailed to all members to inform them of the committee responsibilities and assignments and thus provide an opportunity for non-committee members to respond and provide input to a variety of activities of which they might otherwise be unaware. A greater effort will also be made to distribute the minutes and deliberations of the various committees.

Another possible area for reconsideration and improvement is in the relationship of the committees to the annual meetings. It may be appropriate to allow time at the annual meeting for the committees to meet, review their reports and recommendations in preparation for presentation to the House of Delegates, and to review and if necessary, conduct hearings on pre-filed resolutions and to make recommendations to the House for action.

By developing a continuity of strong committee leadership with specific goals and assignments, we should be able to achieve a stronger sense of purpose and direction.

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NORTHERN HIGHLIGHTS - 8

SELECTED ABSTRACTS ON MEDICINE IN THE NORTH

MOUNTAINEERING MEDICINE

Wilson, R.

Acute high-altitude illness in mountaineers and problems of rescue. *Annals of Internal Med.* 78: 421-428, 1973

This paper is an extensive review of the medical literature on the physiological hazards of mountain-climbing and mountain rescue operations. The article is supplemented by seven case reports and a bibliography of 69 publications. Dr. Wilson is an internist in private practice in Anchorage.

Most of the physiological effects of high altitude may be related to hypoxia and some persons tolerate hypoxia poorly. The major syndromes of acute mountain sickness involve the brain, the eye, and the lung. Each manifestation is described in some detail, with emphasis on pathology, symptoms, signs, and treatment.

Cerebral syndromes are probably related to swelling of the brain. Headache, irritability, forgetfulness, giddiness, insomnia, nausea, vomiting, and occasionally ataxia, paralysis, seizures, and coma may be seen with this condition. The use of acetazolamide, furosemide, and dexamethasone for prevention and treatment are discussed.

Ocular syndromes include blurring of vision, papilledema, congestion of retinal vessels, and retinal and vitreous hemorrhages. Hemorrhages, in particular, may have grave implications and lead to permanent disability. No specific treatment is available but immediate descent is warranted.

Respiratory tract syndromes are primarily disordered breathing and pulmonary edema. Infection is probably no more common than at sea level, but sore throat caused by mouth breathing of cold air is not unusual. An increase in rate and depth of breathing usually occurs at high altitude but irregular or periodic breathing may also be encountered. Pulmonary edema is dramatic and sometimes fatal. Onset is frequently at night, after strenuous effort. Oxygen therapy and rapid descent are the mainstays of treatment, although morphine may also be helpful.

Mountain climbing is becoming more popular and problems of high altitude sickness will no doubt increase. Many climbers are either badly informed on the medical hazards or foolishly trust their physical conditioning. Although all climbers should be prepared for these emergencies, the hazards of rescue operations should be minimized. In particular, adequate oxygen should be carried and no less than three persons should attempt a rescue, with adequate plans for an alternate escape route.

ANIMAL-BORNE DISEASES

Rausch, R. L.

Observations on some natural-focal zoonoses in Alaska. *Arch. Environ. Health* 25: 246-252, 1972.

This paper reviews some general biologic considerations relating to the ecology of certain animal-borne diseases in Alaska, namely rabies, brucellosis, tularemia, alveolar hydatid disease and trichinosis. Dr. Rausch is with the Arctic Health Research Center in Fairbanks.

Zoonoses affect primarily Alaska Natives who live within the zones where natural hosts and parasites interact. Pathogens are transmitted from wild animals directly or through dogs who live in an intimate relationship with man.

The density of wild animals, especially small rodents, may influence the extent to which pathogens are transmitted to man.

Rabies is indigenous in the northern regions and its natural hosts are foxes (both *Alopex* and *Vulpes*). The virus is maintained in the tundra-biocenoses by circulating in fox populations, which in turn depend on the cycles of lemmings and other small rodents.

Two bacterial zoonoses occur widely in Alaska. The biotype 4 of *Brucella suis* is found in wild reindeer in Arctic Alaska and serological surveys have shown a great deal of human infection. The organism was probably introduced from Eurasia in infected domestic reindeer. *Francisella tularensis* coexists in two strains, the holarctic strain, found in small arvicoline rodents, and the nearctic strain, which has a natural cycle involving arctic hares and *Haemophysalis* ticks. The former strain is probably responsible for subclinical human infections, primarily in Alaska Natives.

Metazoan parasites affecting man include *Echinococcus multilocularis*, *E. granulosus*, and *Trichinella spiralis*. Some may involve both introduced strains and endemic strains of the parasite. All of these organisms have natural cycles which do not normally include man. As man encroaches on natural host-parasite assemblages, however, he may be parasitized himself.

Thompson, W.M.; Chisholm, D.P.; Tank, R.

Plain film roentgenographic findings in alveolar hydatid disease — *Echinococcus multilocularis*. *Amer. J. Roentgenol. & Rad. Ther. & Nucl. Med.* 116: 345-358, 1972.

This paper presents a detailed discussion of the radiographic and pathologic findings associated with the various forms of hydatid disease of the liver. The authors are with the Radiology and Pathology Services of the Alaska Native Medical Center in Anchorage.

Results are derived from a study of 19 patients with proven alveolar hydatid disease of the liver. X-ray findings are closely correlated in each case with gross and microscopic pathological findings at surgery or at autopsy. Hepatomegaly was seen in 42% and hepatic calcifications were visible in 68% of cases on plain film examination.

Small radiolucencies, surrounded by a thin rim of calcification, forming spheres ranging in size from 2 to 4 mm, were considered diagnostic of alveolar hydatid disease. These spheres were scattered in larger areas of amorphous calcium ranging from a few millimeters up to 10-12 cm in diameter. Such findings were seen in 11 of the 19 cases (58%).

This paper also contains a detailed presentation of 3 clinical cases and a discussion of the differential diagnosis of hepatic calcifications. Particular emphasis is laid on the radiographic and pathologic features of the various types of hydatid disease.

Eaton, R.D.P.

Current problems in parasitology in Canadian Native peoples *Acta Socio-medica Scandinavica*, Suppl. 6, 1972, pp 249-253

This paper is a brief review of the protozoal and helminthic diseases endemic among the Indians and Eskimos of central and northern Canada. The paper was originally presented at the Circumpolar Health Conference

in Oulu, Finland. The author is with the Northern Medical Research Unit, Edmonton, Alberta.

The fish tapeworm, *Diphyllbothrium*, affects more persons than any other helminth. There are two recognizable groups, the true *D. latum*, which is widespread among the inland Indians, and the cestode which affects the Eskimos of the Arctic littoral. These latter worms are thought to have fish eating mammals and birds as their natural host. *Hymenolepsis nana* is occasionally seen. In former times *Taenia saginata* was very prevalent in certain cattle-raising areas.

Trichinosis is seen in Eskimo groups from eating polar bear and walrus and in Indians from eating black bear meat. Outbreaks usually involve a group hunting expedition. Recently northern nursing stations have been stocked with the drug thiabendazole. Recently a human case of liver infection with *Capillaria hepatica* was diagnosed at autopsy in Saskatoon.

In central Saskatchewan a small band of less than 200 persons have a 25% infection rate with the trematode *Metorchis conjunctus*. No adults have been seen but the eggs are characteristic. One case of an echinostome infection has been recorded in a 6-year-old child from near Edmonton.

Pathogenic protozoa include *Giardia lamblia*, *Isospora belli*, and *Entamoeba histolytica*. *G. lamblia* is found in 30% of the children under 10 and may cause a mucous diarrhea. A single case of *I. belli* coccidiosis has been described. *E. histolytica* is a major problem in a restricted area and is not uncommonly a cause of death. Amoebic infection is largely concentrated in the region inhabited by the Woodland Cree Indians, among 4-5 bands closely related by intermarriage. Amoebic Disease has been prevalent since 1959. Death, when it occurs, is usually due to a perforating colitis. In recent years, a chemoprophylactic regimen using Metronidazole has been used with some success.

Unruh, D.H.A.; King, J.E.; Eaton, R.D.P.; Allen, J.R.

Parasites of dogs from Indian settlements in Northwestern Canada: A survey with public health implications. *Canad. J. Compar. Med.* 37: 25-32, 1973

This paper describes a survey for parasites in dogs in 12 Native communities of Northwestern Canada during the summer of 1971. The authors are with the Western College of Veterinary Medicine in Saskatoon and the Northern Medical Research Unit in Edmonton.

The survey included two communities in Saskatchewan, four in Central Alberta, three in Northern Alberta, and three in the Northwest Territories. Faecal specimens were obtained from 959 dogs at the time of a rabies vaccination clinic. In Addition, 18 canine autopsies were performed, when circumstances permitted.

Entamoeba histolytica cysts were recovered from dogs at Loon Lake, Saskatchewan, where amoebic infection in humans is endemic. *Toxocara canis*, the cause of human visceral larva migrans, was occasional in Saskatchewan and Central Alberta but nearly non-existent further north. *Toxascaris leonina*, a possible cause of human visceral larva migrans, was prevalent in all areas. Dog hookworm, thought to be a cause of human cutaneous larva migrans, was plentiful in all communities surveyed. Taenias or Echinococcus eggs, which could not be distinguished, were also found in all areas. *Dipylidium caninum* was found in a single dog from Fort Rae, NWT. *Metorchis conjunctus*, a trematode causing human infection, was widespread in Saskatchewan, and *Diphyllbothrium latum*, the fish tapeworm, was common wherever fishing was important. The two latter infections, however, reach their final host in both dog and man and are acquired by both from the same

sources, namely fish. One specimen of the dog giant kidney worm *Diocotophyma renale* was recovered by autopsy from a dog in Fort Liard, NWT.

— Robert Fortune, M.D.

Letter to the Editor

Editor
Alaska Medicine

Dear Sir:

In the July 1972 issue of *Alaska Medicine*, an article by Dieter, *et al*, on the health of Native students at Mt. Edgecumbe School was abstracted in "Northern Highlights" (page 98). I thought that perhaps readers of the Journal might appreciate the following comparison of facts. The article was published in 1970 and from the best of my sources here at Mt. Edgecumbe the data must have been collected in 1967. Our comparisons are from the school year just completed — August 1972 to May 1973. I thought the simplest way to present this was to use the published abstract and insert our comparisons in parenthesis following the 1967 figures.

"The school enrollment was 670 (384). Alaska Natives ranged in age from 12.5 to 23 years (15-22). They came from 131 (96) communities in the state, with a particularly large contingent from Barrow, 61 (28). The group was 53% (67%) Eskimo; 18% (8%) Aleut; 15% (14%) Athabaskan; and the remainder Thlinget, Haida, and Tsimpsian (13%).

"The students made a total of 8,518 (7,376) visits to the clinic, including (2,704) to the physician.

"A disease survey revealed that 59% (66%) of the students had refractive errors (20/40 or worse); 38% (34%) had perforated or scarred eardrums; 24% (16%) had anemia (Hct less than 37%); and 23% (6%) had a functional heart murmur.

"Only 11.5% (78%) of the students had a negative second strength PPD. Eight (0) students were treated for TB during the year. Dental caries averaged 11 (8) per student."

Among acute conditions this year, pharyngitis, minor trauma, upper respiratory infections and flu symptoms (during an epidemic) were particularly common. The percentage of skin infections was exactly half.

Perhaps this review could be cited as additional evidence that tuberculosis has been controlled in Alaskan children. The decrease in skin infections, anemia, and functional murmurs may reflect an improved nutritional status. Refractive errors and scarred, perforated drums are unchanged, though it is my impression that if "scarred" and "perforated" were tallied separately, we would demonstrate a decrease in the number of perforations. It seems reasonable that after all of the otologic reconstructive surgery there would be fewer perforations.

Lee M. Schmidt, M.D.
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HIATAL HERNIA AND REFLUX ESOPHAGITIS

Richard Buchanan, M.D.

INTRODUCTION

With the development of better surgical techniques for hiatal hernia repair, the common finding of a sliding hiatal hernia on upper GI series has taken on new significance. Does the finding of hiatal hernia explain the patient's symptoms? Should all hiatal hernias be repaired? Should one be repaired incidentally during the abdominal surgery for another problem, as appendectomies are often done?

The basic question is that of the pathophysiologic significance of hiatal hernia in esophageal reflux and its problems. In light of recent advances in understanding the relationship of hiatal hernia to esophageal reflux and its consequences, a rational approach to diagnosis and therapy is possible and to be encouraged.

PATHOPHYSIOLOGY

With the advent of esophageal pressure recording devices, the definition and function of the lower esophageal sphincter (LES) has improved our knowledge of processes surrounding hiatal hernia (HH) and reflux. A good correlation exists between the presence of symptomatic reflux and a low LES pressure.¹ Resting LES pressure and its ability to increase with increasing intra-abdominal pressure define the competence of this barrier to reflux in a fairly reliable way.² The presence of HH does not appear to influence either of these functions; HH patients appear to have about the same incidence of reflux and pressure abnormalities as non-HH patients.^{3, 4, 5} Accordingly, the diagnostic and therapeutic emphasis has shifted from hiatus hernia to esophageal reflux; repair of a HH with a competent LES and no reflux probably offers no advantage to the patient.

DIAGNOSIS

1. History. A typical history includes low and mid retrosternal burning sometimes referred into the suprasternal notch. This often occurs after fatty meals and when the patient is lying supine or bending over. Some reflux patients complain of eructation of sour material. Gastric contents refluxed into the mouth at night sometimes cause aspiration and coughing of sour material. Food sticking in an area of inflammation-induced motility disturbance is usually relieved by washing it down with fluids. A stricture sometimes requires regurgitation of the trapped food to relieve discomfort. Massive life threatening hemorrhage from

endoscopically proven erosive peptic esophagitis occurs more commonly than formerly believed. Occult iron deficiency anemia without other symptoms may be due to asymptomatic esophagitis. Hiatal hernia per se, without reflux, probably is symptomatic only very rarely.

2. Physical exam. This is not particularly helpful most of the time. The presence of oropharyngeal candidiasis or viral stomatitis suggests esophagitis from these causes. Occult blood in the stool or signs of acute or chronic GI bleeding are some times seen.

3. Testing. The problem rests on how best to define esophageal reflux, since all methods are somewhat fallible and each must be checked against the others.

a. X-ray: The most common means of diagnosing HH is a relatively poor means of reliably diagnosing significant esophageal reflux. By using vigorous maneuvers to bring out reflux (sniffing, pushing on the abdomen, Trendelenburg position, water siphon test), most patients can be made to reflux by an aggressive radiologist. When these maneuvers are not used, only 15% of significant refluxers have free reflux on X-ray. Therefore, to see free reflux without maneuvers is probably significant, but its absence is not.

b. Bernstein test: A properly performed acid infusion test⁶ consists of dripping 0.1N HCl into the distal esophagus unbeknownst to the patient after a 15 minute control drip of saline. If pain is reproduced and disappears promptly with switching back to saline, this is presumptive evidence that the patient's symptoms are from reflux esophagitis. This is most useful in the differential diagnosis of substernal pain. It does not cause pain in normals, but will in 80% of patients with esophagitis. The other 20% appear to be subjectively insensitive to HCl, though they may stricture or bleed or aspirate just the same.

c. Endoscopy: With the development of flexible fiberoptic endoscopes of remarkable clarity, evaluation of the mucosal changes of esophagitis is possible with a minimum of risk. In addition, evaluation of stomach and duodenum at the same time for other sources of pain (such as peptic ulcer disease or tumor), and biopsy of the lesion in the esophagus is possible. Endoscopic criteria are subject to observer variation, and some false negatives undoubtedly occur.

d. Esophageal biopsy: Biopsies through

the endoscope are tiny and superficial; their main use is to rule out cancer (or monilia occasionally). Superior biopsies are obtained with the Rubin tube (multipurpose aspiration biopsy tube); criteria for diagnosis of esophagitis on biopsy grounds are simple and probably accurate over 80% of the time.⁷ This can be an office procedure.

e. Manometry, pH electrode: The most reliable way at present of detecting reflux is with a manometrically placed pH electrode 5 cm above the LES. Falls in pH to less than 4 suggest reflux. In addition, LES pressure and dynamics can be checked and added to the data. At present this is not available in Alaska; hopefully it will be available in the next year in Anchorage.

f. Scan: Studies are currently under way to evaluate the use of gamma camera scanning of the distal esophagus after an isotope load in the stomach to detect reflux. This is a noninvasive method quickly available wherever gamma cameras are in use, and may be quite useful. In addition, diagnosis of Barrett's esophagus (metaplasia of chronically irritated lower esophageal mucosa) has been reported using scan techniques.

In summary, diagnosis is usually made by taking a history. Physical exam is rarely helpful. Office procedures useful in evaluation include the Bernstein test, X-ray, and perhaps Rubin tube biopsy. Means available in Alaska in the future may include manometry and pH probe and scan techniques.

TREATMENT

I. Medical — Mainstays of anti-reflux therapy include the following:

- A. Weight loss.
- B. Elevation of the head of the bed on three- to six-inch blocks (superior to increasing the number of pillows, as the body is not jackknifed; this may increase intra-abdominal pressure).
- C. Nothing by mouth for two or three hours before going to bed at night.
- D. Antacid use every hour and at bedtime. Antacids probably work for two reasons:
 1. They neutralize acid that inflames the esophagus when refluxed, and
 2. Neutralization of the antrum turns on gastrin release, which hormonally raises LES pressure. Their use less often than hourly allows acid rebound after they have left the stomach.
- E. It would be wise to avoid things known to lower LES pressure: caffeine, birth control pills, anticholinergics, smoking, pepper-

mint, and fatty foods. In addition, alcohol and salicylates may cause mucosal injury, and orange juice commonly makes symptoms worse.

- F. Recently attempts to raise LES pressure with the use of cholinergic agents (e.g., Urecholine 25 mg q.i.d.) in the absence of contraindications, have been preliminarily encouraging in patients in whom strict adherence to more orthodox methods has failed.

The vast majority of patients, when placed on these measures and followed closely by an interested physician, will show dramatic improvement. If symptoms are intractable to honest adherence to the above measures over an adequate trial period, (e.g., three to four months), consideration of surgical therapy is reasonable.

II. Surgical — Hiatal hernia surgery until recently has had a bad name. Despite early optimistic reports from crural repair alone (Allison), the rate of recurrence is high. Recent years have seen the evolution of more effective operations such as the Nissen, Hill and Belsey repairs.⁸ Although unclear why, a probable common factor in the success of these procedures is the placement of distal esophagus into stomach, whether above or below the diaphragm. In these operations, results both in symptoms and in improvement of objective diagnostic parameters mentioned earlier are impressive. Vagotomy and pyloroplasty in addition to the antireflux operation increases postoperative morbidity, and probably should be reserved for patients with concomitant active peptic ulcer disease.

Even though effective antireflux surgery is available, most patients with reflux do not need it. The presence of an HH alone on an X-ray, without complications or demonstrated intractable esophagitis, is certainly not an indication for surgery.

SUMMARY

Recent developments in pathophysiology, diagnosis and treatment of reflux esophagitis have been reviewed. Hiatal hernia should be regarded as a relatively innocent anatomical fact, and the diagnosis and therapeutic attentions of the physician should be directed toward esophageal reflux.

BIBLIOGRAPHY

1. Winans, C.S., Harris, L.D. Quantitation of lower esophageal sphincter competence. *Gastroenterology* 52:773-778, 1967.
2. Pope, C.E. A dynamic test of sphincter strength; its application to the lower esophageal sphincter. *Gastroenterology* 52:779-786, 1967.

3. Cohen, S., Harris, L.D. Does hiatus hernia affect competence of the gastroesophageal sphincter? *NEJM* 284:1053, 1971.
4. Editorial: The sphincter that is a sphinx. *NEJM* 284: 1095-6, 1971.
5. Kramer, P. *Gastroenterology*, 57: 442-448, 1969.
6. See Spiro. *Clinical Gastroenterology*, p. 19, 1970.
7. Ismail-Beigi, F. Horton, P.E., Pope, C.E. Histologic Consequences of gastroesophageal reflux in man. *Gastroenterology* 58:163-174, 1970.
8. Butterfield, W.C. Current hiatal hernia repairs. *Surgery* 69:910, 1971.

ELECTRICAL SHOCK SYNDROME

Glen W. Straatsma, M.D.

Introduction: Passage of high voltage electrical current through the body may produce both early and late manifestations. Either alternating or direct current may be responsible for serious injury or death. The following statements do not apply to injuries caused by lightning. Such injuries in most cases are not applicable to any description of injuries resulting from electric current contact. Factors to be considered in electrical injuries include frequency, voltage, amperage, duration or exposure, and even pre-existing underlying disease. Safe current values range in the neighborhood of 1 to 15 ma. Above these figures, current values become unsafe and make it difficult or impossible for the individual to disengage himself from the source of the shock due to flexor muscle strength overwhelming that of extensor muscle strength in the case where the individual is shocked from a source held in his hand. Organic damage resulting from electrical injuries have been conclusively documented.

Death from electrical current may result in one of five ways.

1. Bulbar paralysis may result in respiratory failure and is applicable both in the case of head entry as well as in the case where

the point of entrance of electrical current is an upper extremity.

2. Tetanic contraction causes apnea via paralysis or non function of muscles needed for respiration.
3. Ventricular fibrillation results when the electrical impulse is presented at the time of T wave refractory period of the E K G cycle. Such point of "vulnerability" has been demonstrated by "Lown", et al. The left arm site of entrance seems to be particularly predisposing to this complication.
4. Vagal stimulation may result in death due to cardiac arrest.
5. Death may occur within several days in the case of renal tubular obstruction by myoglobin and hemoglobin causing anuria.

Muscle Tissue: Coagulation of muscle tissue occurs below 80° centigrade. Cooking and charring of muscle tissue occurs at 80° and above. The "Joule" effect with high voltage causes temperatures in excess of those needed to cause coagulation and excessively high temperature are the results of as little as one second contact with

high voltage currents. Histologically muscle tissue undergoes acute swelling and edema of fibers with rupture of myofibrils and increase in interstitial spaces. "Jellinek" noted peculiar spiral-like appearance of muscle fibers following electrical injury.

Blood Vessels: Blood vessels offer an ideal pathway for the conduction of electricity since they are filled with fluid. There occurs generalized arterial vasoconstriction, extreme contraction of the heart muscle, venous stasis, increased permeability of blood vessels resulting in diapedesis and perivascular hemorrhage, intimal destruction.

Eyes: Cataracts, optic nerve atrophy, visual field disturbances, nystagmus and other abnormalities of the eyes have been noted following injury by electrical current.

Liver: Liver alterations have been described with animal experimentation based on changes of enzymes derived from liver tissue.

Kidneys: Following electrical injury, myoglobin and hemoglobin, glomerular, as well as tubular obstruction occurs within several days following acute injury with electrical current. Large amounts of both myoglobin and hemoglobin are released as early as 20 to 30 minutes following electrical accidents. The pathology of such lesions is similar to that observed in the "Crush Syndrome."

Neuropathological Aspects of Electrical Injury: Based on postmortem material, organic abnormality has been documented in the human being following electrical injury. Among these abnormalities noted are the following: focal petechial hemorrhages in the gray matter of the

brain and spinal cord, chromatolysis especially in the pyramidal cells, curious wide dilatations of perivascular spaces most numerous in brain stem and spinal cord, changes in peripheral nerves consisting of ballooning of myelin sheath and fragmentation of the sheath of Schwann, disruption of cerebral substances itself has been noted, necrosis of white matter of the brain has been documented, glial cell disintegration has been observed, diffuse cerebral edema, perivascular hemorrhages and distortion of convolutions has been observed. Infrequently, individual observers have noted progressive cerebellar syndrome, spinal atrophic paralysis with a clinical picture similar to progressive muscular dystrophy, Parkinsonism, disseminated sclerosis and epilepsy.

Conclusion: In conclusion, injuries caused by electricity often show tendencies to progress beyond the changes initially visible externally and this fact requires close followup of individuals receiving such injuries. Resuscitative attempts at the site of injury are absolutely mandatory if damage secondary to ischemia is to be minimized. It seems that most physicians underestimate the potential effect of acute and chronic injuries resulting from electrical current accidents.

BIBLIOGRAPHY

- The Journal of Industrial Hygiene and Toxicology, March 1934
- Journal of Occupational Medicine, 1965
- German Clinical Journal, 1964
- The British Journal of Anesthesiology, 1964
- Lancet, 1934
- Acta Ophthalmologica, 1963
- Electro-Medicine Journal, 1960
- The German Journal of Neurology
- The Canadian Medical Association Textbook, 1950
- Cecil and Loeb Standard Medical Textbook, 1967
- Graner and Sahs Standard Textbook of Neurology, Sixth Edition

VOLVULUS OF THE CECUM IN THE SUBDIAPHRAGMATIC SPACE

James A. Wilson, M.D.
F.A.C.S.

This paper is being written to call attention to an unusual surgical problem, that of volvulus of the cecum entrapped in the subdiaphragmatic space. The patient was a 45-year-old white male, Mr. W. S., who was seen on 12-26-72 by his physician.

At that time he complained of cramping abdominal pain, generalized. He was examined and no abdominal findings were apparent. He was sent home with a tentative diagnosis of "flu." He was again seen that evening without any particular additional findings, and he was given a prescription for Lomotil. On the following day, 12-27-73, he was seen by a second physician who also did not find anything unusual or significant in the patient's symptoms or abdominal findings. By the evening of the same day he was once again seen in the Emergency Room at which time his abdomen was found to be "board-like" with reduced bowel sounds and distention. At this time abdominal x-rays were taken which appeared to show free air under the right diaphragm. At this time I first saw the patient in consultation. I confirmed the above findings in checking the right pneumoperitoneum on the film. There did not appear to be any pneumoperitoneum on the left side, i.e., left subphrenic air collection, and the diaphragm appeared to be slightly thickened. The patient had an acute

surgical abdomen, due to perforation of an abdominal viscus, probably duodenal ulcer.

The patient had had previous abdominal surgery for a hemoperitoneum and was aware that he had a malrotation. At abdominal exploration, a tremendously distended and twisted loop of colon, measuring at least five inches in diameter, was retrieved from underneath the right diaphragm. This was achieved without great effort and the entire mass, i.e., volvulus of the cecum and ascending colon, was brought out of the abdomen. It was acutely inflamed and tremendously distended with no actual free perforation. A right hemicolectomy and ileo-transverse anastomosis was performed. There was a relatively benign postoperative course. The wound healed well with a delayed closure, and he had no further intestinal problems.

Interposition of the colon below diaphragm and over the liver occurs in both children and adults, more commonly in adults. Originally described as Chilaiditis Syndrome in 1910, usually symptoms are those of intermittent distention and bloating with interposition of a normal colon under the diaphragm.

I was unable to find any reports in the literature similar to this case and I am reporting it as an oddity.

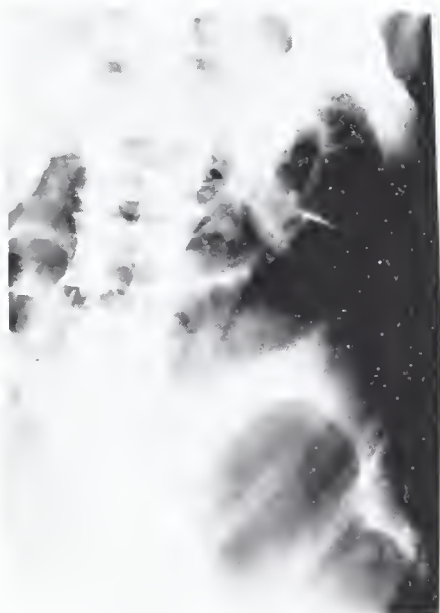


Fig. 1. Supine abdomen radiograph showing dilated loops of small bowel characteristic of obstruction and large loop of dilated bowel in right upper quadrant.



Fig. 2. Decubitus abdomen showing interposed loop of dilated bowel between the liver and diaphragm containing an air-fluid level.

PRESIDENT'S PAGE

By Glenn B. Crawford, M.D.

At the inception of the Regional Medical Program the Federal philosophy and emphasis was on the use of funds to satisfy locally determined priorities in the delivery of medical care. In Anchorage the effectiveness of this approach is illustrated by the cobalt radiation unit and the Health Sciences Library. During the past several years the national emphasis has been away from locally determined requirements and toward predetermined allocations for specific purposes. Often the purpose or issue is administratively manufactured and promulgated through the news media. HMO's and PSRO are examples of this approach. Another technique is the crash program to conquer the latest and most popular "crisis" such as alcoholism and drug abuse. Current rumblings indicate that hypertension will be a major U. S. health problem in 1974. The consequences of responding to this Federal manipulation deserves some consideration by the Medical Association. When federal dollars are involved all states must be treated equally. What may be appropriate for another state may not be pertinent for Alaska. The incidence of sickle cell disease and trait in Alaska is significantly different than in the southeastern states. The mere availability of public grants does not always justify the clamor to obtain and use them. The Alaska State Medical Association has a responsibility to assess and express the necessity for responding to these "opportunities."

Last month the Mental Health Committee mailed a questionnaire to the membership as part of a poll being conducted to gather information on drug abuse. If nothing more the impressive list of programs, resources, offices, action groups, etc. must have been enlightening to many physicians. It illustrates that the number of "interested experts" in a particular field at any given time is directly related to the availability of public dollars. There is room to suspect that many of today's drug experts will become tomorrow's blood pressure experts or

whatever other entity becomes the public priority.

This broad spectrum of experts and responses that generates from the grasping for grant allocations is not totally unworthy. If one accepts their inevitability then the requirement becomes one of observing and choosing the most effective and providing the professional support that will be necessary to maintain the service or program as the federal dollars and emphasis subside.

This stance will be particularly important in maintaining selected resources for the management and treatment of alcoholism. The present level of funding and quasi-professional interest is wasteful and inefficient for anything other than an exploratory approach to the problem. It should be the responsibility of the practicing physicians to choose and support the service that will be most effective in the future.

Another important role of the Association must be the conservation of existing and proven services. There is an easily observed tendency towards bureaucratic disintegration during the rush to obtain allocated funds. The majority of federal grants require token matching or "in kind" participation by state and local agencies. In these efforts to meet this requirement health authorities tend to fragment and de-emphasize their primary purpose. A health department has an obligation and responsibility to provide a stable, well-designed program of public health services that must continue in order to assure the continued well-being of the community. To jeopardize these in order to provide matching services and thereby obtain additional money to embark on a new currently popular program could be disastrous.

As experts come and go and medical problems and issues wax and wane in popularity the physician retains one characteristic which assures a certain degree of immunity to this financial manipulation: His relationship to his patients as individuals rather than diseases.

COMMISSIONER'S PAGE

Frederick McGinnis

Commissioner

Department of Health and Social Services

I am pleased to report that Medicaid services to all eligible Alaskans continues to provide more needed medical services by competent physicians at a tremendous cost savings to all Alaskan taxpayers and the State of Alaska. The favorable federal matching has permitted Alaska to keep more people in nursing homes, provides for the early periodic screening and diagnosis treatment, which allows for dental services, and other all around improved medical services to needful Alaskans. Medicaid participation in the medical community is 98% for hospitals and nursing homes and 90% for physicians, an encouraging indicator of an upward trend in Medicaid providers.

As the Division of Medical Assistance enters into its second fiscal year of operation, it is appropriate to examine the cost figures generated by the State's adoption of Medicaid. Projection of General Relief Medical payments would indicate that the State's tab for FY '73 would have been at least \$5,500,000 had Alaska not established Medicaid. Conversely, all medical assistance payments (GR Med, plus Medicaid) totaled \$6,540,000 during FY '73, illuminating the fact that at least \$1,000,000 worth of substantial health benefits are directly attributable to Medicaid — an increase in medical services to Alaskans of at least 20%.

While \$4,764,000 of state funds (of the \$6,540,000) were actually expended for both categories of medical assistance, it is representative of a lesser amount of funds that would have been expended in the absence of Medicaid. Federal matching funds amounting to \$2,837,000 enabled Alaska to reap a savings of \$3,573,000 — or approximately \$1,200 for every Alaskan. By subtracting total health assistance savings from State expenditures for all medical assistance in FY '73, the residual is \$1,928,000, or about equal the amount expended for GR Med in FY 1970. I am pleased to say that utilizing Medicaid, the Department, already one-quarter into this fiscal year, looks forward to further substantial savings of your tax dollars while at the same time furnishing better medical services to greater numbers of needful Alaskans.

DIVISION OF MENTAL HEALTH

A great deal has been happening in the past three months with regard to the Mental Health Program for Alaskans and I would like to address a few remarks to our successes and continuing ef-



Frederick McGinnis

forts in this area.

First, I would like to introduce our three new professional staff members in this Department who possess fine backgrounds in psychiatry.

Jerry Schrader, M.D., formerly of Salem, Oregon, joined the Department in July as Director of the Division of Mental Health, a position which has been vacant for 13 of the past 16 years. He received his medical degree from Kansas University and spent a year at Harvard Medical School working in the Laboratory of Community Psychiatry. Dr. Schrader has been a psychiatric consultant and lecturer for public agencies in Oregon for a number of years.

Robert Gregovich, Ph.D., was appointed Developmental Disabilities Coordinator in August, arriving from Sacramento, California, where he served as the State Director of Developmental Disabilities. He received his Bachelor's Degree at the University of California at Berkeley, and his Ph.D., in Social Psychology at the University of Oregon.

Jorge Ferriz, M.D., has worked in psychiatry for the past 20 years and is the new Southeastern Regional Psychiatrist. He received his medical degree from the University of Mexico in Mexico City. Most of his prior 20 years were spent with the Bellevue Medical Center in New York City.

Both Dr. Schrader and Dr. Ferriz are certified by the American Board of Neurology and Psychiatry.

The addition of these professional men will greatly enhance the effectiveness of Alaska's mental health programs which have suffered for years due to the continuing lack of a sufficient number of qualified psychiatrists.

One high priority for the Division of Mental Health at this time is the establishment of a system under which patients will be billed for care and treatment at mental health hospitals according to an "ability to pay" schedule currently under development. In all cases, such billings will be made only after it has been determined that the amount charged is reasonable in view of the patient's financial resources and that their rehabilitation and progress will not be adversely affected by the billing process.

Another high priority of the Division is the vigorous recruiting effort for a permanent superintendent at API, as well as the continuing pursuit for increasing the professional staff of psychiatrists to insure the best possible services for mental health patients.

Another area of concern to the Department is that of providing for the care and treatment of "mental offenders." These are persons who are found not guilty of crimes of which they have been accused because they are judged either insane or mentally incompetent to stand trial. Alaska has never had a facility appropriate for providing proper care, protection, and treatment for mental offenders; however, it is imperative that such persons be safeguarded and that every reasonable effort is made to effect their return to health.

Several options are available and each would be costly in terms of dollars and has drawbacks relative to their practicality. The Department is pursuing an agreement with the State of California under which the State would pay for the care and treatment of Alaska's mental offenders in California's institutions.

Final resolution of this problem, however, will lie in the construction of an "Intensive Care Plus" wing at the Alaska Psychiatric Institute, the establishment of a psychiatric wing in one of our correctional institution, or the funding of a separate facility in Alaska which could provide both security and treatment for mental offenders.

On still another front, the Department recently implemented an imaginative, new program at API involving residency training for psychiatrists. This

program provides for graduates of the Hahnemann Medical School and Hospital of Philadelphia to serve as staff psychiatrists for a six-month period. After this period of time, the State may be able to offer these doctors regular staff positions with the Division of Mental Health. This will certainly provide needed professional services at API on an on-going basis and, hopefully, will result in the building of a full time, qualified staff of doctors trained in psychiatry.

With the new professional psychiatrists who recently joined the Department, the residency training program, and concurrent moves to establish a credit section at API and provide for the treatment of mental offenders, it is our goal to move Alaska to the forefront of the national effort to insure better mental health for all Alaskans.

METHADONE TREATMENT PROGRAM

In a letter dated October 25, 1973, to the Langdon Clinic, this Department cited the following four documents, plus its consideration of the Langdon Clinic's responses to all four documents which were considered to be inadequate:

(1) The Department's evaluation of Langdon Clinic's drug program conducted April 25-27, and the Clinic's response to the issues discussed provided by Aron Wolf, M.D., July 2, 1973. The Department considered their responses inadequate.

(2) The 20 items of concern expressed by the Greater Anchorage Area Borough Health Department, August 7, 1973, with a review and reply by Aron Wolf, M.D., received August 20, 1973. The Department considered their responses inadequate.

(3) The professional medical evaluation of the Langdon Clinic Drug Program August 31, 1973, by G. James Berry, M.D., with the response by Aron Wolf, M.D. The Department considered their responses inadequate.

(4) The report of the investigation furnished as a result of the Food and Drug Administration Compliance Inspection dated September 20, 1973 provided this Department with responses to various items by Clinic personnel in the document. The Department considered their responses inadequate.

I want to assure the present patients of the Langdon Clinic Methadone Drug Program and the citizens of this State that the Methadone Treatment Program will continue uninterrupted after November 30, 1973.

Federal, State and Borough health officials have been planning an alternative, improved program since it became apparent the State would be unable to approve the Application of the Langdon Clinic Methadone Treatment Program.

In order to guarantee that the best possible program will be implemented, representatives of American Technical Assistance Corporation have a

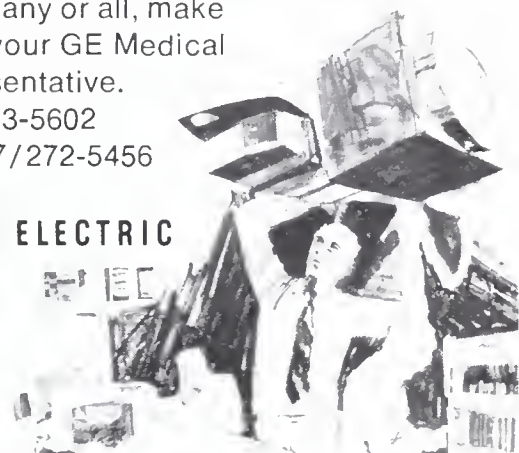
firm agreement to provide training and various other services as needed to the Greater Anchorage Area Borough Health Department. This group has

helped develop similar programs in several other states under contract to the National Institute of Mental Health.

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GENERAL  ELECTRIC



SELF EVALUATION - THE LAVA DIE

A Table Clinic

Aubrey N. Stephens, D.D.S.

Prevention has become a byword in every dental office. A great deal on this subject has been inked nationally and one author even suggests that prevention be a criteria of dentist selection. Third party payment, expanded duties and changing national emphasis has influenced our practices even to diagnosis and treatment planning. Ease of application and insurance acceptance has influenced clinical judgment.

The purpose of this paper is to motivate you to join me in re-examining the basics of restorative practice, and to realize that you diagnose and utilize only those clinical techniques you are comfortable in performing and to understand that performance demands fine tuning in detail. Observation of repeated difficulty during dental board examinations plus critical self evaluation has shown that the gold inlay is a very difficult and demanding restoration to do well. Prevention begins with precise margins, proper proximal contour and contact placement, and functionally developed occlusion and anatomy. All the gnathological principals, and related treatment of the stomatognathic system must pyramid from the elementary basics of restorative dentistry. It has been my experience that the most durable, compatible, and functional restorations of all materials are placed by those dentists with the greatest skill in complex foil restorations. Each of us must decide what quality of patient care is acceptable to our own self image and reach for the skills that fulfill that goal.

What began for me as a search in "precision casting" soon expanded into a study of cavity preparation, use of rubber dam, impression materials and properties, wax carving problems, plus the variables of casting, and adapting them to an office routine. The objective, then, is to develop a standardized technique, giving predictably accurate results which are workable with the equipment and routines of your office.

The how it's done is for your determination. The Bibliography will initiate your study. Actual casting accuracy centers around the use of the lava die as taught at U.S.C. school of dentistry. Use of this unforgiving material enables you to easily detect and correct any errors that might appear in technique. This material carves easily without chipping and can then be fired to a hardness enabling you visual accuracy check of technique. It can be used repeatedly and once a dependable and predictable result is obtained, can be used to back check other variables in technique such as impression material stability and accuracy. The lava

blocks can be obtained from Book Store, School of Dentistry, University of Southern California, 925 W. 34th Street, Los Angeles, California 90007.

A reprint entitled *Method for improving excellence of cast restorations through use of lava testing die* by Drs. Russ Bassett, Rex Ingraham, and John Koser, can be requested from the school. Dr. Ingraham's atlas of Cast Gold Restorations outlines with colored pictures, procedures using the lava and is a must for study of inlay technique.

Acceptance of this challenge will require considerable sacrifice in time, personally, and initially clinically. The satisfaction is immeasurable.

To get you started a few clues may be helpful. Water-powder ratio is critical. As little as .2cc error in water measure will vary your expansion enough to alter clinical results. If premeasured investment envelopes are used, they must be accurately measured before use as the manufacturer's 50 gm measure may be off by as much as 1 gm. If bulk investment is used, variations from batch to batch may be experienced. Measure accurately and store in baby food jars as one of the components will settle out if left on the shelf thus altering properties. Most of the literature states that the investment breaks down at some point above 1250 degrees. For smoother castings, the breakdown actually begins at just over 1000 degrees and is not just a spontaneous thing. Extended burnout at a lower casting temperature gives adequate expansion.

I hope your appetite is whetted.

It has been my experience that the greatest men in dentistry give most freely of themselves. The Bibliography mentions some of these. In addition recognition should be given to unnamed members of our society who directly and through example provide motivation and uncompromise in approach.

See bibliography on page 138 - 139



MUKTUK MORSELS

ANCHORAGE:

Robert E. Mallin, M.D. has joined Donald B. Addington, M.D., for the practice of Plastic Surgery.

Louis W. Nauman, Ph.D., has joined Alaska Medical Laboratories as Director of Laboratories.

Lee Schlosstein, M.D. has joined the Anchorage Medical and Surgical Clinic in the practice of Internal Medicine and Rheumatology.

The following Physicians have joined the Alaska Clinic: Sherman Beachman, M.D., Internal Medicine; Buffinton Burtis, M.D., Internal Medicine; Gilbert Dickie, M.D., Family Practice; John Mabry, Radiology; Robert McMillan, M.D., Anesthesiology; Duff Walker, M.D., Radiology.

Mark Agnew, M.D., and Elroy Brandt, M.D. have joined the Alaska Family & Industrial Clinic.

Harold Bryan, M.D. has joined the College Village Clinic in Family Practice.

William Sause, M.D. has joined Gene C. Persons, M.D. in Family Practice at Lake Otis Clinic.

James Swarr, M.D., has closed his practice of Ophthalmology and returned to the lower '48.

BETHEL:

Dr. George Brenneman has returned to the United States Public Health & Service Hospital as Medical Director.

NOME:

David Hobbs, M.D., and John Greif, M.D., have joined the Norton Sound Health Corporation.

MEETINGS:

The 2nd Mount Alyeska Lung Conference will be held at Alyeska Resort on December 7th, 8th, and 9th, 1973. Richard L. Witt, M.D., of Anchorage heads the committee of physicians, nurses, and therapists working on the plans for the conference. Gerry C. Little, M.D. and Charles Moseley, M.D. are representing the Alaska Academy of Family Physicians on the Committee to Gain Prescribed Hours of Credit for the Membership. For further information contact Leo C. Kaye, Executive Director, American Lung Association of Alaska, 406 "G" Street, Anchorage, Alaska, 272-2332.

The 3rd International Symposium on Circumpolar Health will be held at Yellow-Knife, Northwest Territories, Canada, on July 8-11, 1974. Titles, abstracts, and pre-registration are required

before January 1, 1974. Request information, registration, and abstract forms from Dr. O. Schaefer, Charles Camshell Hospital, Edmonton, T5M 3A4 Canada.

Two surgeons from Alaska were inducted into the American College of Surgeons as Fellows (members) at the annual five day clinical Congress of the Organization in Chicago on October 19, 1973. They were Ward B. Hurlburt, M.D. of Anchorage, and Edwin Lindig, Jr., M.D., of Fairbanks.



(Left to right) Dr. Edward M. Kawakami of Honolulu, Hawaii, Dr. Spencer Frankl of the Boston University School of Graduate Dentistry, and Dr. James E. Carlson of Palmer, Alaska inspect two pertinent ADA publications between sessions of the American Society of Dentistry for Children's 1973 Seminar on Pedodontics July 22-26 in the ADA Building, Chicago. Dr. Frankl was administrator of the seminar, to which one ASDC member from every state in the United States is brought, expenses paid, through a grant to ASDC from the Procter & Gamble Co. Many other dentists also attend each year.

THE MONTH IN WASHINGTON

The debate concerning the right of large states to establish statewide Professional Standards Review Organizations (PSRO's) has apparently come to an abrupt halt with the government saying "no" in a loud and clear voice.

The Department of Health, Education and Welfare announcement came only 10 days after it had released a statement that said under certain

circumstances it would consider naming a state-wide PSRO in big states where there is support for it among the interested medical and health groups.

Though an about face was denied by Henry Simmons, M.D., Deputy HEW Assistant Secretary for Health and acting head of PSRO, there was an apparent conflict between the statement given earlier to the PSRO Advisory Council and the final decision.

The designated PSRO areas which will be announced by late November or early December will include no area having many more than 3,000 physicians within it, Dr. Simmons told a news conference in his office. He conceded there is no such limitation in the PSRO law, but the 2,500-physician level suggested in the report by the Senate Finance Committee was "reasonable" but not "rigid."

Dr. Simmons also told the news conference that guidelines will be issued in February on how organizations can apply to become PSRO's within the designated areas. By next June, he said, the hope is to have 50 PSRO's chosen. Within four to six weeks a PSRO bulletin will be sent to all physicians in the nation outlining the status of the program and informing them of PSRO developments.

He predicted from 20 to 30 small states will be single-state PSRO areas.

PSRO, said Dr. Simmons, is "probably the most sensitive program that has been mandated" for the medical profession "and one of the most important ever passed in terms of impact upon the profession and benefit to the public."

The present Congress won't act on a full-scale national health insurance program, predicts Sen. Wallace Bennett (R.-Utah).

Bennett, top Republican on the Senate Finance Committee which has jurisdiction over NHI, said such a national program would require new taxes to finance it.

"Congress is keenly aware of a strong and growing resistance to any increase in taxes for any purpose," he said. "To complicate the situation further, there is a real rivalry between the Administration and the Congress as to which can demonstrate the greatest fiscal responsibility.

"I don't believe the people really realize just how great the added tax burden must be to provide the billions needed to support some of the large-scale programs which have been proposed," Bennett said, adding that a health care bill sponsored by Sen. Edward Kennedy (D.-Mass.), would cost "an estimated \$70 billion."

Although ruling out the possibility of Congressional action on a full-scale national health insurance program, Bennett said it was possible that Congress might act on "some limited type of

catastrophic health insurance coverage and improvements in Medicaid."

The Senator was referring apparently to the bill introduced by Finance Committee Chairman Russell Long (D.-La.) and Sen. Abraham Ribicoff (D.-Conn.), recently for a Social Security-financed catastrophic plan and federalization of Medicaid.

The HEW Department has sent the White House a proposed national health insurance program weighted toward catastrophic coverage.

Though HEW aides insisted the plan was more of a "series of concepts" than a final program, the broad outlines of the HEW scheme are likely to be retained in the final bill sent to Congress next year by President Nixon.

The old mandated employer idea is retained in the new plan. Through private health insurance companies, companies must offer employees minimum benefit insurance protection and pay 75 percent of the premium tax. Enrollment in a Health Maintenance Organization (HMO) must be allowed workers as an option if available. The label given this plan is Standard Employer Plan (SEP).

For poor people, a Government Assurance Program (GAP) would replace Medicaid. This would offer sliding-scale Federal subsidization for health insurance that would have the same minimum benefits as the SEP plan. The very poor would pay nothing for the premium; those making more would pay up to \$300 a year.

Higher income people not covered by SEP could enroll in GAP.

In no case, under the HEW draft, would any family have to pay out-of-pocket more than \$1,600 a year in health bills.

The proposal would provide coverage of hospitalization, most physicians' services, some mental health care, limited dental care, and out-patient drugs on a deductible basis. Estimated total costs of the SEP premium is \$600 annually.

The plan calls for a medical credit card for all enrollees. Insurers would pay providers and bill patients for services not covered.

Bibliography for Self Evaluation - The Lava Die

Bibliography

Dr. Russel Bassett — Laguna Hills, California, USC
Dr. Ray Contino — Pasadena, California, Private
Dr. Robert Fadal — OK Coral, Waco, Texas, Private
Dr. Rex Ingraham — Los Angeles, California, USC
Dr. Malcolm Jendresen — San Francisco, California, U of Calif.

Dr. Ken Murchie — Vancouver, B.C., U.B.C.
Dr. Lyle Osterly — U. of Washington
Dr. Everette Payne — Beverly Hills, California, USC
Dr. Bob Shilling — Bolinas, California, Private
Dr. Dave Shooshan — Pasadena, California, Private
Dr. Bruce Smith — Seattle, Washington, U of Washington
Dr. Gerry Stibbs — Seattle, Washington, U of Washington
Dr. Dick Tucker — Ferndale, Washington, Private

Voy Bridge and Inlay Book

An Atlas of Cast Gold Procedures — Ingraham, Bassett,
Koser

Gold Boil and Rubber Dam, Ingraham and Kosier

Cavity preparations for Elementary Operative Dentistry
Technic — Dr. Gerald Stibbs

Science and Technic of the Cast Restoration — Hollenback
Dental Clinics of North America, Vol. 13, No. 3, July 1969,
Subject Occlusion

Physician Education Program in Family Planning at UCLA. Sponsored by the American College of Obstetrics and Gynecology. Approved for credit by the American Academy of General Practice. A one week, no tuition, seminar, March 11-15, 1974, covering the areas of Clinical Contraception, Family Planning Administration, and Human Sexuality. After attending the seminar physicians have the option of returning for 2-4 days of clinical skill development (no tuition) and/or learning surgical procedures (tuition). For more information contact Irvin M. Cushner, M.D., OB-GYN Department, UCLA, Center for the Health Sciences, Room 24-139, Los Angeles, California, 90024. Telephone: (213) 825-1046.

“THE PRISON”

Another Editorial Commentary

The September 1973 issue of *Alaska Medicine* carried an article by Michael S. Cline, Ph.D., entitled “‘The Prison,’ a Village View of Hospital Care,” followed by an editorial commentary by Dr. Paul Eneboe. The publication of these pieces in the State Medical Association journal stirs again some smoldering embers.

Perhaps the most obvious issue is whether the article was suitable for publication at all in a medical journal. Had I been consulted as an Associate Editor (and I was not), I would have recommended against publication because the paper, despite its good points, falls seriously short when measured against many of the canons of good scientific writing. The paper is at best a compilation of anecdotal quotes, some of them undoubtedly out of context, but all carefully chosen to support the author's principal hypothesis. No attempt at a valid sampling methodology or use of a standardized questionnaire is apparent. These quotations, the sources of which are rarely indicated, are loosely stitched together by the author's interpretations, which often display his apparent lack of familiarity with hospitals, health professionals, and human nature in general and with the Alaska Native Health Service in particular. The conclusions drawn from the “facts” are often outrageous generalizations about the PHS, its policies and its people, yet the author carefully warns us (in speaking of PHS employees) that “The ‘these people’ syndrome is commonly held by hospital employees who have little actual knowledge of the people they serve, yet are willing to generalize on what little they do know. They have stereotyped groups without knowing individuals very well.” A good prescription which the author himself apparently could not swallow.

Furthermore, all of us know (and Dr. Eneboe points this out clearly) that a case similar to Dr. Cline's can be made against any hospital or health care system in the nation. It is simply a matter of collecting and selectively filtering enough consumer opinion. The thought should keep us all humble.

In addition to its methodologic faults, the paper displays factual errors of the grossest kind. For example, the author should be aware that Alaska Natives eligible for care at PHS hospitals are not restricted by a blood quantum factor. Surely he should also know that the formation of Native policy-making boards for PHS hospitals began nearly five years ago and that at the present time eight such autonomous Alaska Native Health Boards exist in the State, representing the 12 Regional

Alaska Native Corporations. And again, surely he must know that Native Health Service physicians are indeed fully qualified, yet he makes no effort in the paper to correct this serious misinformation held by some of the Alaska Native people he quotes.

Another characteristic of the paper concerns me. The author seems to assume throughout that the many faults of the health care system he describes in such zestful detail are the result of deliberate policies evolved by unfeeling bureaucrats and conscientiously applied to the hapless Native people. My editorial colleague, incidentally, falls into the same trap in his eagerness to condemn the PHS. In fact, a more careful reading of Dr. Cline's own basic material shows that the faults, where they occur, are nearly always attributable to a breakdown in communication in the personal relationship between an individual patient and an individual doctor or nurse. These troubles are not agency, bureaucracy, or policy problems, so much as they are profession problems. Are we to assume that well-trained health professionals have one standard when working on salary with Natives and another when on a fee-for-service basis with non-Natives? I shudder to think of it, especially since nearly one-fourth of Anchorage physicians in private practice began their Alaska career with the Public Health Service. And if we really do have a double standard, can we in conscience blame the government or should we perhaps look within ourselves?

As one interested in a higher standard of medical journalism, I can't pass up one stylistic comment on the paper. When the use of jargon in scientific writing becomes a barrier to communication it should be amputated radically and without regret. One example should suffice: “Further, personnel should be able to live with cognitive dissonance with respect to cross-cultural interaction.”

I have stated an editor's view of why the paper should not have been published. Now let me state my view as a member of ASMA. *Alaska Medicine* is not only the official voice of the Alaska State Medical Association, it is also, as the very name implies, the voice of the Alaska profession throughout the country and the world. What we publish in our journal should be worthy of this wider readership.

A certain group in ASMA has cherished the view that the Association should represent medicine in Alaska, not merely the interests of private practice. Surely the profession's concerns embrace more than a method of payment. The

contributions of private medicine, the PHS, and the military to the health and well-being of all Alaskans have been enormous. By the peculiarities of history, climate, and geography, no one group has been able to serve the needs of all people in the past, nor is there any immediate expectation that it can in the future. Each segment has much to be proud of and each has a job to do in this unique land. Yet again and again Association members in the annual meetings, in the pages of this Journal, or in other forums, have been involved in what amounts to petty name-calling or base and often scurrilous attacks on PHS physicians who are trying to do a difficult job as well as they can, sometimes under very trying circumstances. Those close enough to the Native Health Service to have their facts straight know that many of these attacks are unprovoked, unwarranted, unprofessional, and simply unfair.

I believe it is time we as an Association asked ourselves what this adversary relationship is meant to accomplish. Is it fostered in the pious hope that abuse will make the Native Health Service wither and die? Is it intended to destroy the confidence of the thousands of Alaska Natives who look to the PHS for their care? Is it meant to demoralize PHS physicians in the field so that they will leave bush areas? Or is it meant to cause estrangement and antagonism between two large segments of the

same profession? The first of these possibilities strikes me as unrealistic, and the latter three as unworthy of Alaskan physicians.

In Fairbanks last June, as in Anchorage the previous June, I heard discussion about how more PHS and military physicians could be brought into the Association. Presumably their dues would be welcome supplements to the coffers, but I would like to think also that some truly wished to see their participation as colleagues. It seems abundantly clear to me that this recruitment effort has little chance of success so long as it appears to be the official policy of ASMA that government medicine and its practitioners are to be scorned, abused, and ridiculed at every opportunity.

A divided, back-biting profession has no place in a State with as many opportunities for practice as Alaska has. Pluralism in health care is basic to our present system. A superficial reading of history as well as a minimal sensitivity to future trends will confirm that pluralism is not a passing fad either in Alaska or in the nation as a whole. It is here to stay and we should be big enough to learn to live with it. We have a lot in common as physicians.

Robert Fortune, M.D.

Associate Editor, *Alaska Medicine*
Former Member, Bush Medicine
Committee, ASMA

NORTHERN HIGHLIGHTS - 9

Sauberlich, H.E.; Goad, W.; Herman, Y.F.; Milan, F.; Jamison, P.

Biochemical assessment of the nutritional status of the Eskimos of Wainwright, Alaska. *Amer. J. Clinical Nutrition* 25: 437-445, 1972.

The people of the village of Wainwright, 90 miles southwest of Barrow, were the subjects of a nutritional survey conducted in January 1969 under the auspices of the United States International Biological Program. The authors are with the U.S. Army Medical Research and Nutrition Laboratory and the University of Wisconsin.

A total of 129 Eskimos participated, out of a village population census of 308. These individuals underwent anthropometric measurements and submitted blood and urine samples for biochemical analysis.

The measurements of children under 15 were plotted on standard University of Iowa growth charts. In the years 5-15 Wainwright children followed the Iowa norms fairly closely. The biochemical determinations revealed fairly normal findings with respect to serum proteins and protein electrophoresis. Based on urinary excretion, intakes of riboflavin and thiamin appeared to be adequate. Vitamin B₆ excretion was marginal in some younger individuals. Serum Vitamins A and C were not measured but intakes appeared to be adequate.

The major nutritional problem appeared to be anemia in children under six years of age. Over half of children 2-6 had hemoglobin levels considered "at risk." Most of these children had a hypochromic, microcytic type suggestive of iron deficiency.

The paper also discusses the sources of food in the community. The general conclusion is that the people of Wainwright enjoy an acceptable level of nutrition despite their harsh environment.

Duncan, I.W.; Scott, E.M.

Lactose intolerance in Alaskan Indians and Eskimos *Amer. J. Clinical Nutrition* 25: 867-868, 1972.

This study was undertaken to determine whether Alaskan Indians and Eskimos are deficient in intestinal lactase, a condition which would cause intolerance to dietary lactose. The authors were with the Arctic Health Research Center at Fairbanks at the time of the study.

Thirty-six Eskimos and Indians and 16 Caucasians participated as volunteers. Results showed that 30/36 Alaska Natives, but only 1/16 Caucasians were lactose intolerant as evidenced by diarrhea after a challenge dose.

The findings have important implications for the design of nutrition programs which involve the use of whole milk or milk products. Traditionally Alaskan Natives did not drink much milk, nor is there evidence of a large consumption today. If 80 per cent or more of Alaska Natives are lactase deficient, nutrition programs for them should be planned to avoid heavy use of milk and milk products.

Schaefer, O.; Crockford, P.M.; Romanowski, B.

Normalization effect of preceding protein meals on "diabetic" oral glucose tolerance in Eskimos. *Can. Med. Assoc. J.* 107: 733-738, 1972.

This paper summarizes studies of glucose tolerance on 76 Canadian Eskimos hospitalized at the Charles Camsell

Hospital in Edmonton, Alberta. The authors are associated with that hospital or with the University of Alberta Medical School.

The subjects were in generally good health and none showed clinical evidence of diabetes or other metabolic disorder. All had a standard oral glucose tolerance test (OGTT) and 41 also had a similar test preceded by the ingestion of 300-500 mgm of lean meat (M+GTT). Twenty-two patients had in addition a standard intravenous glucose tolerance test (IVGTT).

More than half (41/76) of the OGTT patients showed abnormal blood sugar curves, yet among those with abnormal findings, none showed a diabetic pattern when tested by the IVGTT. Those who had the M+GTT showed significantly greater tolerance to the oral glucose load, with an apparently earlier release of insulin.

Many Eskimos therefore resemble mild diabetics in their delayed insulin response to oral glucose but do not show these characteristics with an intravenous glucose load. The authors suggest that these Eskimos have a lower sensitivity of insulinogenic gut and possibly pancreatic factors which can be corrected by prior meat ingestion.

With the traditional high protein, low carbohydrate diet of the Eskimos, this metabolic problem was not significant, but with the greatly increased availability of free sugar in today's northern diet, there may be health implications for the future.

Rahola, T.; Miettinen, J.K.

Accumulation of ¹³⁷Cs in Finnish Lapps. *Arch. Environ. Health.* 26: 67-69, 1973.

This brief paper, originally presented at the Oulu Conference in 1971, describes the radiation exposure of Finnish Lapps between 1962 and 1970. The authors are with the Department of Radiochemistry, University of Helsinki, Helsinki, Finland.

In Lapland and other arctic and subarctic regions, radionuclides from nuclear tests are efficiently enriched in the natural food chains, especially the food chain from lichen to reindeer (or caribou) to man. Even though radioactive fallout in Finnish Lapland is relatively low compared with that in Western Europe, the exposure of humans, especially to Cesium-137 and Strontium-90, is unusually high. In reindeer herders, 70-90% of the ¹³⁷Cs burden comes from reindeer meat, 5-15% from cow's milk, and 5-20% from fish.

Each spring between 1962 and 1971, the ¹³⁷Cs content of a group of 80-100 Lapps has been measured. The highest values were found in 1965, with a progressive decrease until 1969, when the decline leveled off.

In 1970, the internal irradiation from ¹³⁷Cs to reindeer herders averaged 60 mrad/year. Relatively little effect of ⁹⁰Sr was noted because the radionuclide is concentrated in the reindeer bones, which are not eaten. Naturally occurring ⁴⁰K adds another 27 mrad/year and ²¹⁰Po and ²¹⁰Pb contribute about 8.5 mrad/year. Because the latter emit alpha radiation, however, the biological effects are higher. The Finnish Lapps also are exposed to natural external irradiation, both cosmic and terrestrial.

Continuing surveillance of this high risk group is warranted.

Feldman, S.A.; Ho, K.J.; Lewis, L.A.; Mikkelsen, B.; Taylor, C.B.

Lipid and cholesterol metabolism in Alaskan Arctic Eskimos. *Arch. Path.* 94: 42-58, 1972.

This study describes cholesterol and plasma lipid patterns in the Alaskan North Slope Eskimos. The authors are with the Great Lakes Naval Hospital, the University of Alabama Medical Center or the Cleveland Clinic Foundation.

In the summer of 1970 blood samples were taken from 168 volunteers, or 70% of the population of Point Hope. Samples were also drawn for comparison from 31 Barrow students attending Mt. Edgecumbe School. Eight individuals from Point Hope volunteered to participate in a cholesterol balance study which involved the use of tagged cholesterol-4-¹⁴C.

In general, the mean serum cholesterol of 168 Point Hope Eskimos was 221 ± 66 mgm/100ml. The values found in persons over 36 were not different from those of the general population. Cholesterol levels in the Boarding School students were found to be significantly lower than those of age and sex matched controls from Point Hope, presumably because of the radically different school diet.

The Point Hope group also showed low serum triglyceride levels (69 mgm/100ml), low very low density lipoproteins (less than 35 mgm/100ml) and high free fatty acid levels (34mgm/100ml), all consonant with their high fat, low carbohydrate diet.

The cholesterol balance study revealed that the amount of cholesterol absorbed was linearly proportionate to the amount in the diet. The absorption efficiency was about 50% in the dietary range of 420 to 1,650 mgm/day.

Alaskan Eskimos are known to have atherosclerosis (although the incidence is relatively low), despite the high fat content of their diet and their fairly high serum cholesterol values. The authors explain this paradox in part by suggesting that changes in the availability of dietary cholesterol through the year must result in periods of hyper- and hypo-cholesterolemia. These peaks and valleys are matched by the influx and removal of cholesterol from the vascular walls. The net deposit of lipid material in the arteries is probably less than that of the U.S. white population, which has a high cholesterol diet throughout the year.

Bang, H.O.; Dyersberg, J.

Plasma lipids and lipoproteins in Greenlandic west coast Eskimos. *Acta Med Scand.* 192: 85-94, 1972.

This paper describes the results of blood lipid and lipoprotein studies performed on Greenlandic Eskimos of the Umanak District. The authors are with the Department of Clinical Chemistry, Alborg Hospital North, Alborg, Denmark.

The biochemical determinations were performed on 130 Eskimos from Greenland, a control group of eight Danes matched for age and a group of 25 Eskimo women living in Denmark.

Significantly lower concentrations of total lipids, cholesterol, triglycerides, B-lipoproteins and pre-B-lipoproteins were found in the Eskimos as compared with the Danes. The Eskimo women living in Denmark had plasma lipid values comparable to those of the Danish controls. These findings would tend to support the hypothesis that the blood lipid pattern is environmentally rather than genetically determined.

The people of the Umanak District depend largely on a diet of seal, whale, fish, and sea birds, especially during the summer months, when the study was carried out. The

intake of protein and fat is high and the intake of carbohydrates low. Animal fat used by these Eskimos, however, is known to be relatively high in unsaturated fatty acids.

The authors note the extremely low incidence of diabetes mellitus and coronary atherosclerosis in the Greenlandic Eskimos and suggest that the dietary patterns of these people may be significant in this regard.

—Robert Fortune, M.D.

Letter to the Editor

Editor

Alaska Medicine

1135 Eighth Avenue, Suite 6
Anchorage, Alaska 99501

Dear Sir:

Though I find that most of the scientific articles contained in *Alaska Medicine* are well done, and that the journal serves a useful and valuable purpose as a forum on health issues, I am afraid that the editorial staff did the public a great disservice in publishing the paper entitled, "The Prison: A Village View of Hospital Care," by Michael S. Cline, Ph.D., and the accompanying spoiled commentary on the article by Paul L. Eneboe, M.D. I will not dwell on the methodology employed by Dr. Cline to develop his paper but only say what is quite obvious: the information was accumulated and presented in a fashion so as to heavily bias the paper in favor of negative perceptions and leave the reader with the impression that the Alaska Native Health Service indeed "represents an end-stage development of the dehumanized, a moral, group-think institution," to quote Dr. Paul Eneboe, self-styled antagonist of the "great bureaucracy." This impression could not be further from the truth.

In essence, Dr. Cline describes a phenomenon which the health profession as a whole is accused of today — the lack of sensitivity towards the patient as an individual human being, who needs kindness more than ever because his health and security are impaired. Even at its best, having to undergo medical care in any form is not a pleasant experience. A person must surrender himself to a stranger who pokes and probes into the innermost recesses of his mind and body. He's pricked, infused, transfused, debilitated and rehabilitated. He's intubated, extubated, X-rayed, manipulated, and often castigated for not following a treatment regimen. He's shifted to and from physicians, laboratories, departments, offices, hospitals, and between states. He receives bills that are astronomical and which have bankrupted many a family. His privacy is lost; he's subjected to long waits; and often he does not understand clearly his health problem or the treatment rationale.

These events are universal. But the potential for problems occurring in the service of 55,000 Alaska Native people, in a cross-cultural setting, living in 157 scattered villages and towns over an area one-fifth the size of the U.S., minimally developed, is greatly increased.

While I will address some of my remarks to the specific criticisms, I believe the underlying substantive issue is whether the agency is an unfeeling, bureaucratic institution, ignoring patient problems as implied, or is it providing ways for Native consumer input to address the whole spectrum of problems related to delivering health care.

The Alaska Native Health Service, as one method of

improving health services and accommodating the needs of the people, provides care at the village through Native Health Aides. The total of our annual contracts for these services amounts to \$1,342,000. This figure does not include training costs. Currently, most of the day-to-day health care for Alaska Natives is provided in the patient's home village by these trained Native Health Aides who are supported by physicians through daily radio contact. The Native Health Service contracts through Native organizations for the services of 185 Health Aides employed by their own village. If hospital services are required, the patient normally will be referred to the closest facility where the appropriate care can be given. Other factors such as logistics, cost, patient preferences and scope of available services are considered. Eligibility for care, including transportation costs, is not restricted because of blood quantum. Many Native patients can and do pay their own travel costs. In addition, those who are eligible for Medicaid are entitled to have travel costs covered.⁶

Dr. Sixten Haraldson, World Health Organization consultant, has recently written the following in a monograph:

"The ideal health service to scattered population has hardly been designed and executed in any place. However, Alaska is one of the few places where services to the extremely wide-spread and newly settled Eskimo population has been adapted to its purpose in an efficient and interesting way." (Haraldson, Sixten S.R.: Health Planning in Sparsely Populated Areas. Goteborg 1973.)

The transport of patients around Alaska is a most difficult enterprise because of the weather, great distance, scattering of communities and high cost. Yet a remarkable job is done through the excellent cooperation of the Alaskan airline carriers and charter services and the Department of Defense, Air Rescue Service. A great deal of concern and energy, as well as funds, are expended in assuring that patients do not miss linkages in the health care system when they are being transported. Arrangements are made in all patient transfer locations to assist the patient to get to his destination as easily as possible. Escort services are provided whenever there is a need.

Regarding qualifications of medical staff and quality of care, all of our medical staff are fully qualified physicians — there are no interns, nor have there been in the past. A large number of our physicians are Board certified or eligible. They are carefully selected both on the basis of professional qualifications and suitability for working under the special conditions in Alaska. A high degree of motivation and sensitivity to people are qualities we especially seek. During the past few years, we have had many more applications for jobs than we can fill. All our physicians now are volunteers since the draft expired. Orientation to the Native culture is a regular requirement for new employees entering the Native Health Service. Five of our hospitals are accredited by the Joint Commission on Accreditation of Hospitals.

Recognizing the social and economic benefits of integrating health staff with the general community, the Indian Health Service has, for several years, tried to obtain authority to guarantee the leasing of housing in the community, to encourage communities to make housing available. Thus far this effort has been unsuccessful. Suitable staff housing is woefully lacking.

Native consumer input into health care services has been an increasingly active development for the past five years — a fact which Dr. Cline somehow missed. There had been formed, in the Service Unit which he speaks of, a locally controlled health board composed of Native people, representatives of the Service Unit. The Native Health Service has helped establish eight different health boards which work with the Alaska Native Health Service. These

health boards are located in each of the seven Service Units of the Alaska Area, and participate with the hospital staff in the conduct of the health program. There is also a state-wide health board which is composed of one representative of each of the twelve Regional Corporation areas and meets on a state-wide level with the Director of the Native Health Service and his staff.

Obviously, the boards and our agency have not solved all the health problems of the Alaska Native people. However, we feel that we have made significant progress in attacking some of the many problems. For instance, we feel we have established a good dialogue between the Alaska Native people, through these health boards, and our agency. The annual budget we have allotted for the support of the boards for fiscal year 1974 is approximately \$100,000. These boards meet four or five times each year in each of the Service Units to plan and evaluate the health programs, set priorities, and help establish policy. The agenda topics and the business discussed by the boards are decided by the board members themselves and not by this agency.

The health boards regularly address the very problems expressed in the "Prison" paper and in my remarks above. Problems are discussed and solved on a local basis through the interaction of the health board and health staff. Others are handled by the state-wide board. A few months ago, as a result of the board's activities; each Native Health Service Hospital now has adopted as formal policy and practice the "Patient Bill of Rights." In addition, formal mechanisms were developed to encourage and facilitate the airing of patient complaints as a healthy form of evaluation as well as problem solving, and as a means of improving patient care.

We believe we have established not only a meaningful dialogue with the Native consumer but, much more than that, a genuine relationship which enables him to affect the policies, planning and outcomes of the health care program for Alaska Native people.

An example of another type of consumer involvement is a contract the Native Health Service has with the Alaska Native Health Board to evaluate alcoholism care in Alaska and to design more effective methods of providing care. The two-year contract amounts to \$116,000.

Still another example is a contract for over \$100,000 for the Norton Sound Health Corporation to furnish physician services in the Norton Sound area.

Additional health planning contracts with the Alaska Federation of Natives and Bristol Bay Native Association, to promote Indian community development in the health area, total \$98,000. More contracts of this nature are planned for later this year, depending on the allocation of Congressional appropriations.

The former OEO grants to the Alaska Federation of Natives for community health development are now administered by the Bureau of Community Health Services of the Public Health Service as 314e grants, through the Indian Health Service. These funds largely support the health activities of the Alaska Federation of Natives, Yukon-Kuskokwim Health Corporation, Norton Sound Health Corporation, Kotzebue Area Health Corporation, Koniag Health Services Corporation, Tanana Chiefs Health Corporation, and total over \$2.5 million.

The ultimate answer to correcting problems relating to health care is the intimate involvement of the Native consumer in the health care system that primarily serves him, with not only the opportunity to shape policy and operation but to share in the accountability for the outcome. Much progress is being made towards that end.

Sincerely,
John F. Lee, M.D.
Director
Alaska Area Native Health Service

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